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Environmental Impact Report

CALIFORNIA & POWELL CONDOMINIUMS

C1275

EE 78.418

Publication Date: April 23, 1982
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Draft
Environmental Impact Report
California & Powell Condominiums

EE 78.418

April 23, 1982

Written Comments Should be Sent to the Environmental Review Officer, 45 Hyde Street, San Francisco, CA 94102

D REF 711.58 C1275

California & Powell
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1982.

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SUMMARY

PROJECT DESCRIPTION

The site of the proposed California and Powell Street condominium building is the southeast corner of the intersection of California Street and Powell Street, San Francisco, California. The project site consists of about 6,100 square feet of land in the area known as Nob Hill, and is currently used as a surface parking lot with spaces for 17 cars.

The objectives of the project sponsor (Clement Chen and Associates) are to provide luxury housing in the form of condominiums and to realize a financial return on sale of the units.

The proposed project would be a 16-story structure of approximately 93,000 gross square feet rising about 160 feet in height. The building would contain 29 2-, 3- and 4-bedroom condominium dwelling units over three parking levels. A bedroom in each could be used as a study at the option of the tenant. This report assumes all bedrooms. The condominium units would range in size from 2,200 gross square feet for the two-bedroom units up to 8,100 gross square feet for the four-bedroom penthouse unit including mezzanine. A mechanical penthouse would rise 16 feet above the roofline.

The project would provide 30 self-park parking spaces, two of which would be handicap spaces and three of which would be compact car spaces. Two bicycle spaces and a single freight loading/trash pick-up space would be provided. Auto access would be from California Street. Emergency auto access and freight loading/trash pick-up access would be from Powell Street.

The two-bedroom units would be priced at about $1,000,000; the three-bedroom units would be priced at about $1,300,000; the four-bedroom units would be priced at about $2,500,000; and the four-bedroom penthouse unit would be priced at about $4,300,000 (all in 1982 dollars).

Project construction costs are estimated at about $23.5 million (1982 dollars) excluding any special interior improvements that would be provided to occupants of the building. Construction would take about two years, and occupancy would follow completion of construction by approximately three months.

IMPACTS AND MITIGATION MEASURES

A. Transportation

Impact: Truck maneuvering in/out of the completed project's loading space would encroach into the northbound uphill lane and the partitioned cable car right-of-way on Powell Street. This maneuvering could disrupt traffic and cable car flow. Automobile maneuvering from the project entrance area could encroach onto California Street.

Mitigation: Truck activity would not be allowed during 7:30 a.m. - 8:30 a.m. and 4:30 p.m. - 5:30 p.m. peak hours. An off-street loading space, not required for this project, would be provided off Powell Street.

Impact: There could be an impact on existing off-site parking facilities due to project-related vehicles, as space would not be available for on-site guest parking with most residents present. This would be true in the event of a party or other function at one or more of the condominium units.

Mitigation: The project sponsor is considering the use of valet parking. Valet parking could accommodate about 45 cars, providing flexibility in meeting parking demand during parties or special functions. The use of valet parking would be determined when the project nears completion and the desires of initial occupants for or against valet parking are made known. If implemented, valet parking would not be allowed to cause back-ups onto California Street.

Impact: Due to the shortage of on and off-street parking spaces in the vicinity of the project site, construction workers would have a difficult time finding parking spaces, increasing the demand for parking in the area.

Mitigation: The project sponsor would select a parking location adjacent to the downtown area (in an area designated as appropriate in the Master Plan) for the use of project construction workers, and would provide a shuttle van service between the parking area and the project site.

Impact: During the construction process, equipment and material deliveries could encroach into the adjacent streets.

Mitigation: Construction deliveries would be prohibited during the 7:30 a.m. - 8:30 a.m. and 4:30 p.m. - 5:30 p.m. peak hours and would be limited to the project's California Street frontage.

B. Climate and Air Quality

Impact: The proposed building would generally increase winds along Powell Street south of California Street by channeling more wind into this route.

Mitigation: Six street trees would be provided along the Powell Street sidewalk (three more than now are there); this would reduce, but not eliminate, street-level winds.

Impact: The proposed project would create new shadow areas adjacent to the project site. The principal existing building affected would be the Stanford Court Hotel on summer mornings. At other times, and at other seasons of the year, the project would cast shadow over adjacent streets and pedestrian areas.

Impact: Earth-moving, grading and site excavation would generate dust and suspended particulates for an approximately two- to three-month period during construction.

Mitigation: Watering to control dust on the construction site would be required of the construction contractor by the project sponsor.

C. Noise

Impact: Maximum noise levels during project construction would be about 59 to 66 dBA inside the rooms of the Stanford Court Hotel with line-of-site to the construction operation for about a one-month period. These noise levels could interfere with sleep in the rooms along Powell Street. Maximum noise levels of 95 to 100 dBA could be expected just outside the residential building to the south of the site and could be expected to distract these occupants and annoy them during times when the equipment would be operating.

Mitigation: To reduce noise levels on the sidewalk, a construction safety fence about eight to ten feet high, which would serve as a noise barrier, would be constructed around the west and north boundaries of the site before the start of foundation work. This would limit sidewalk construction noise to 80 to 85 dBA. A noise barrier high enough to shield the upper floors of adjacent buidings would not be feasible, as it would have to be 25 feet tall.

D. Visual Quality and Urban Design

Impact: Views east from portions of the Powell Street side of the Stanford Court Hotel would be obstructed by the proposed structure. Views south from the four-story University Club located north of the project site would also be obstructed. Some views toward the southeast from the California Street side of the Fairmont Hotel would be obstructed.

Mitigation: To preserve all views from the Stanford Court Hotel and the University Club, would require construction of the proposed building no higher than two stories. The project sponsor feels that a structure containing two floors or any number of floors fewer than 16 would not be economically practical on the site.

F. Economics

Impact: The existing parking lot would be discontinued at a loss of about $27,600 per year in gross receipts (1982 dollars) to the lot operators.

With direct annual municipal revenues from the project of approximately $384,000-$387,000 and additional indirect revenues, not quantified, it would appear that the project would generate a net fiscal gain to the City and County of San Francisco of $354,000 above present revenues from the site. If costs of services continue to rise at the present rate of inflation and Proposition 13 were to continue to limit property tax increases, the project could effect a net fiscal loss in later years.

ALTERNATIVES

Alternatives to the proposed project considered in this report include the no project alternative; alternative uses of the project site; alternative designs including exterior design treatment and a stepped-down profile; and an alternative that would conform to the Planning Code with Conditional Use or Variance authorization.

I. PROJECT DESCRIPTION

A. LOCATION

The site of the proposed California and Powell Street condominium building is at the southeast corner of the intersection of California and Powell Streets on Nob Hill in San Francisco. The approximately 6,100-square-foot site includes Lot 16 in Assessors' Block 256. The general location of the project is shown in Figure 1, page 7, Regional Location Map, and the precise location of the project site is shown in Figure 2, page 8, Site Location Map. (For a photograph of the site, see Figure 24, page 45).

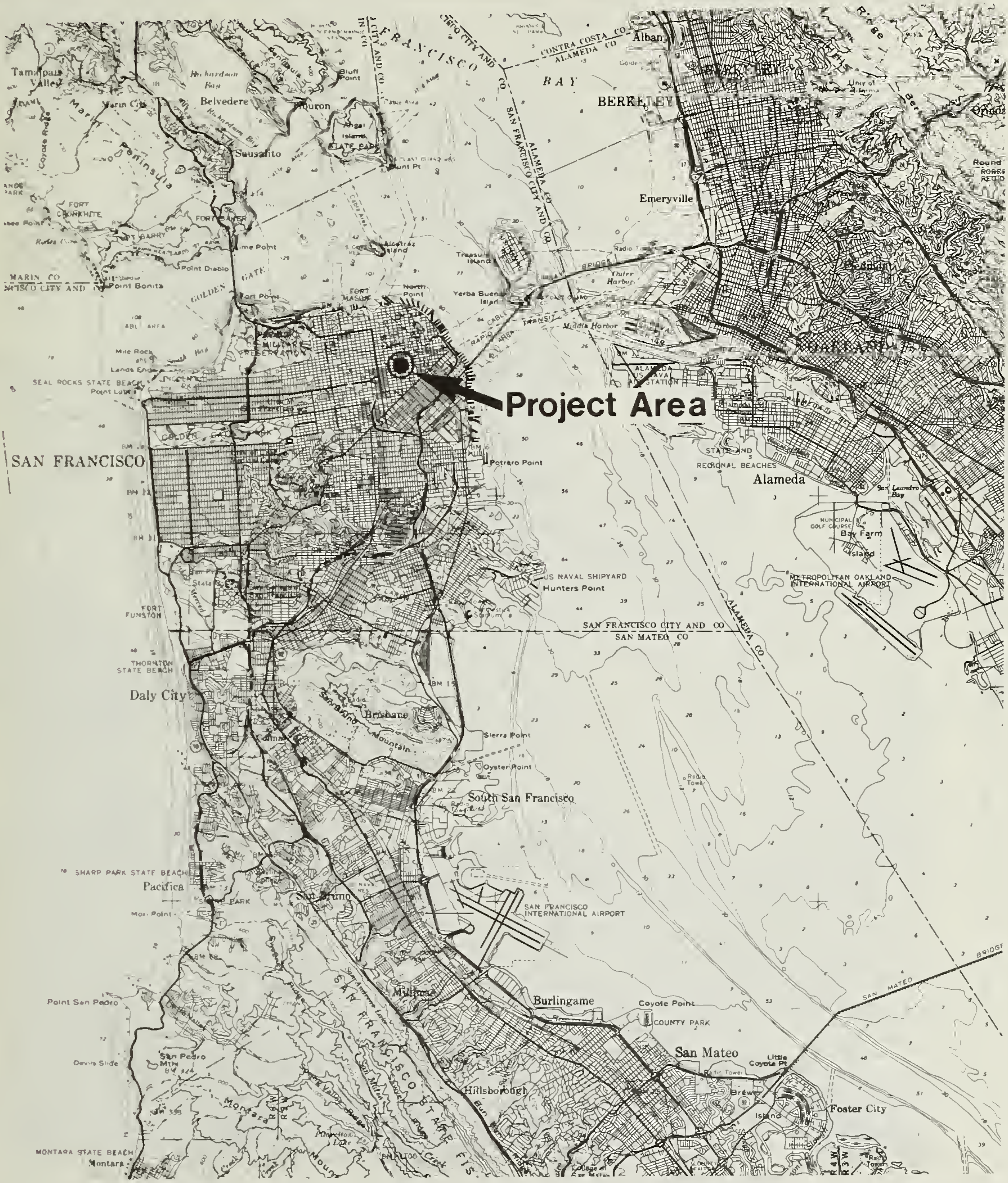
B. OBJECTIVES OF SPONSOR

Clement Chen and Associates, of San Francisco, is project sponsor, architect and developer. The objectives of the project sponsor are to provide condominium housing, realize a financial return on sale of the units, and provide housing within a short distance of the downtown.

C. PROJECT CHARACTERISTICS AND SCHEDULING

The proposed project would be construction of a 16-story, 29-unit building about 160 feet tall (see Figures 3-9, pages 9-16), in place of a surface parking lot. A mechanical penthouse would rise 16 feet above the roofline. The building would have a gross floor area of approximately 93,000 square feet, and would contain 2-, 3-, and 4-bedroom condominium units over 30 parking spaces on three parking levels.

The floor areas of the condominium units would be about 2,200 gross square feet for the two-bedroom units; 2,500 gross square feet for the three-bedroom units; 4,700 gross square feet for the four-bedroom units; and 8,100 gross square feet for the four-bedroom penthouse unit. Representative floor plans are shown on Figures 10, 11 and 12, pages 17, 18, and 19.



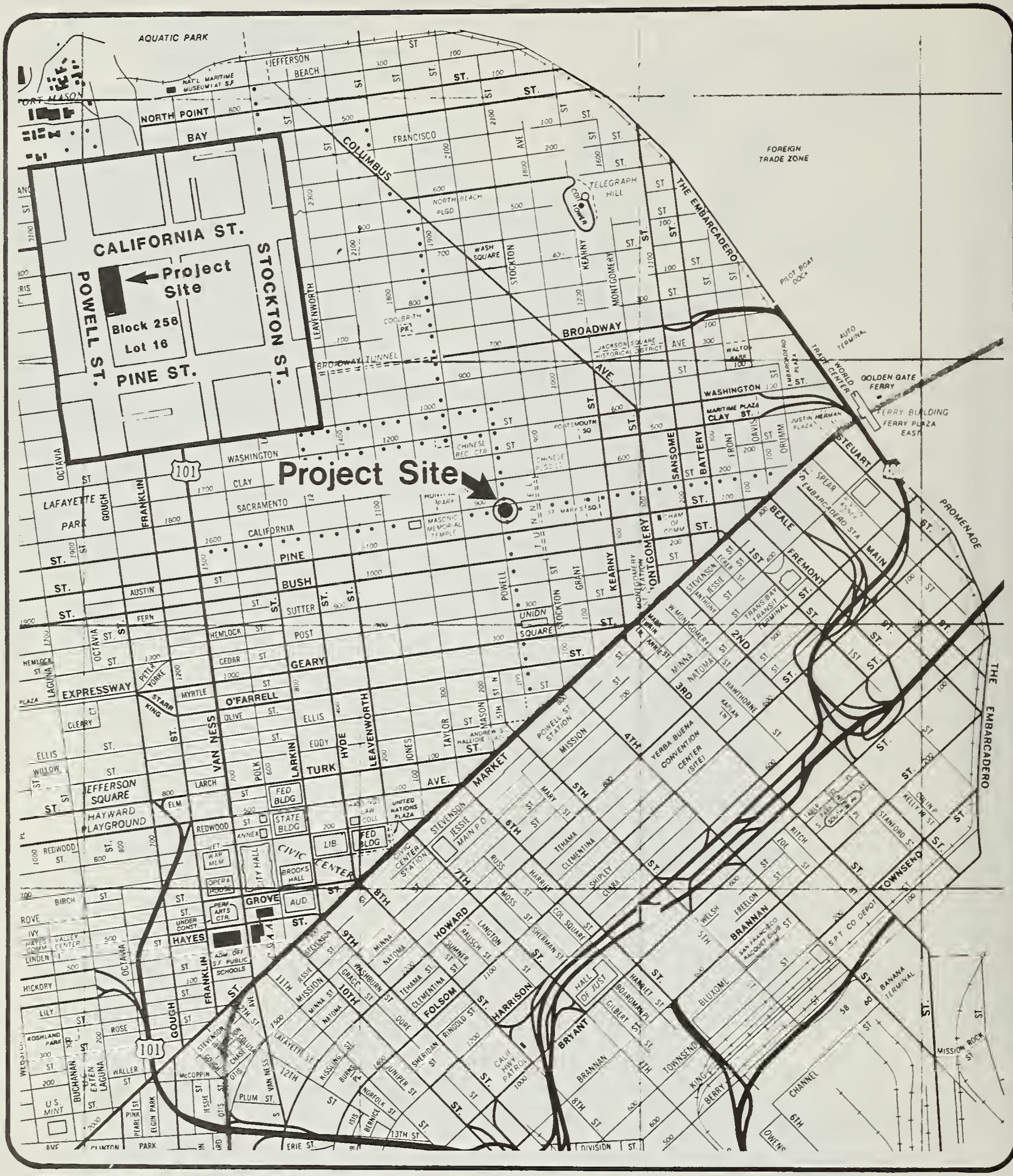
Regional Location Map

North

0 1 2 4
Scale Miles

Source: U.S. Geological Survey

Figure No. 1



Site Location Map

Basic map reproduced by permission of the California State Automobile Association, copyright owner.

North

0 500 1000 2000

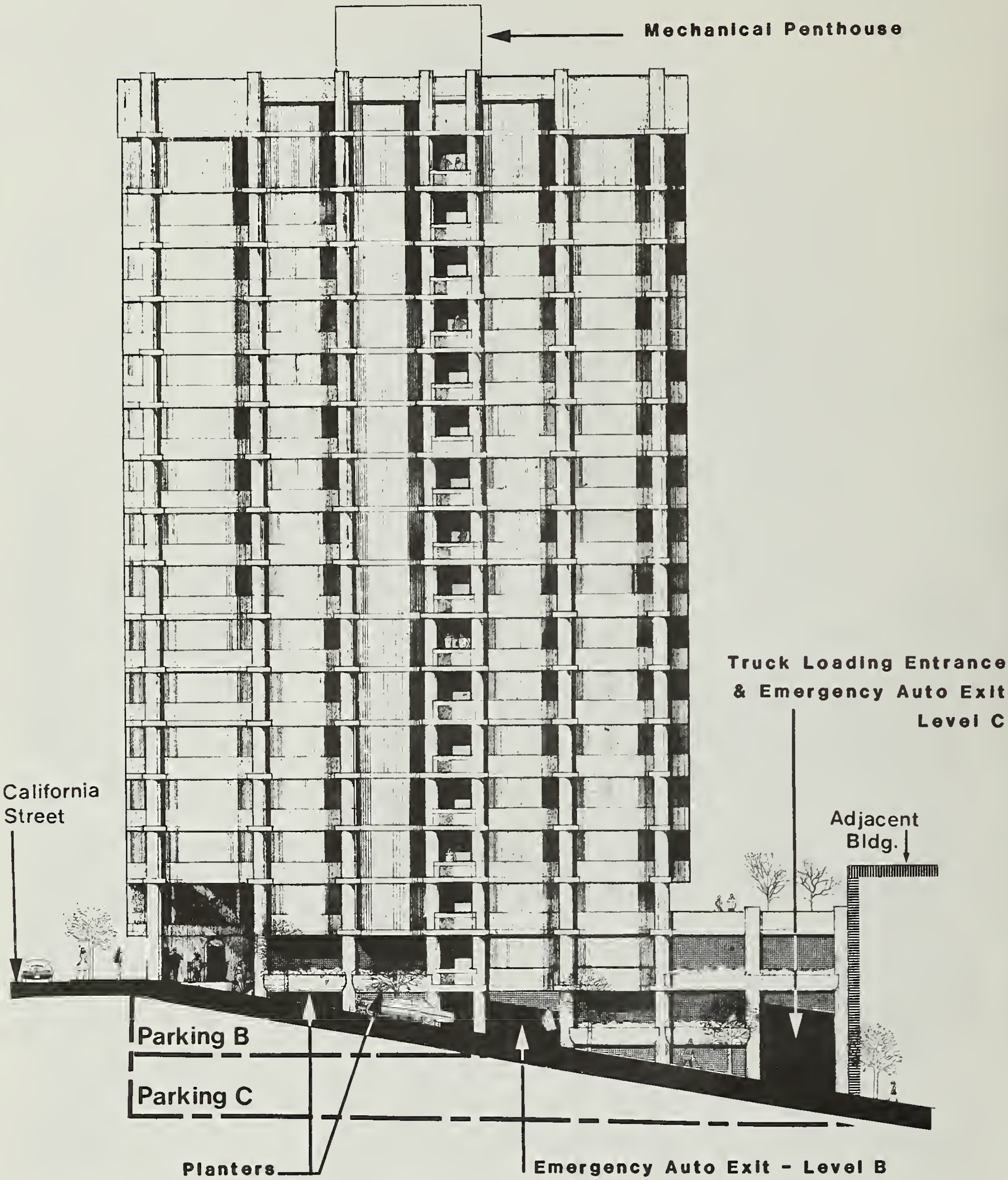
Scale Feet

Figure No. 2

Perspective of proposed project.

(View is to the west along California Street. Stanford Court and Mark Hopkins Hotels in background) **Not to Scale**

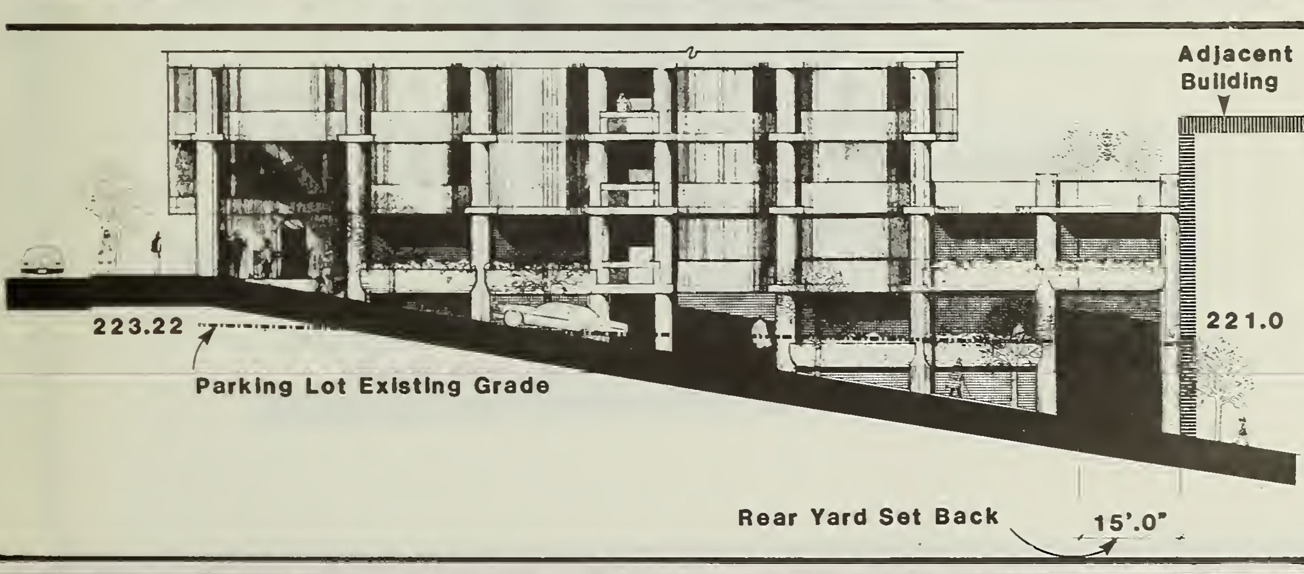
Source: Clement Chen & Associates **Figure No. 3**



Powell St. Elevation-West Side

SOURCE: Clement Chen and Associates

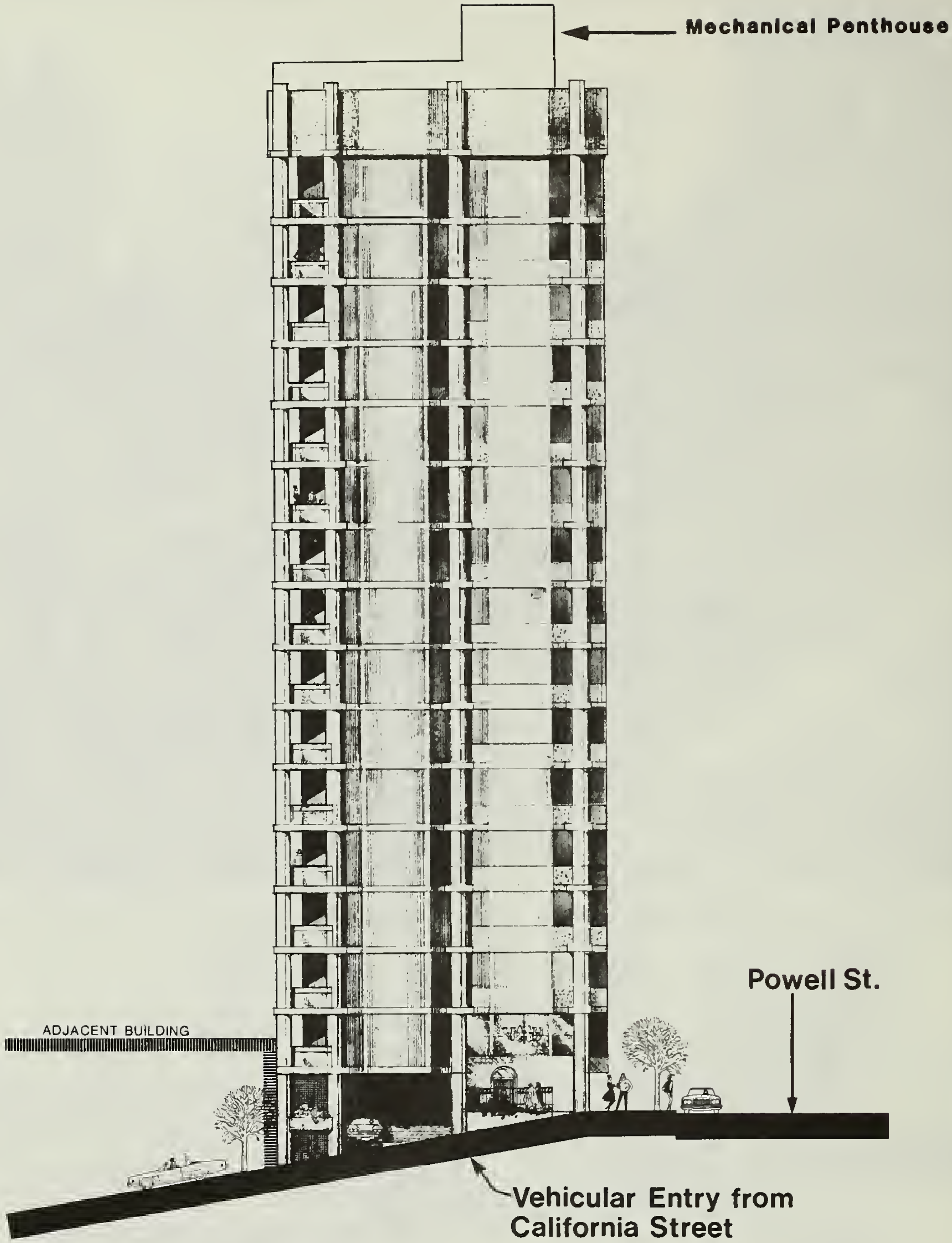
Figure No. 4



Powell Street Elevation

(Existing Ground Level and Proposed Elevation)

Figure No.4A

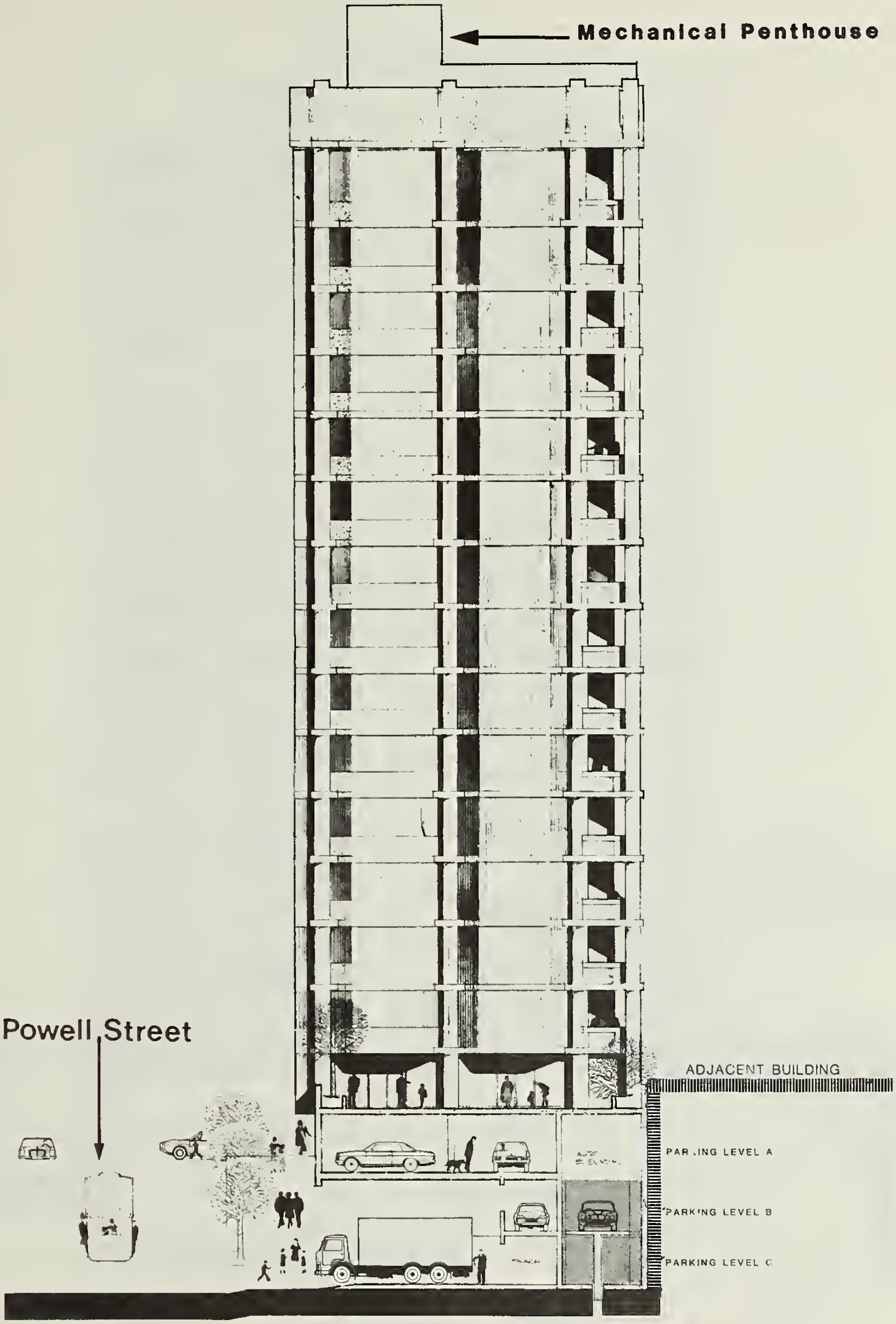


California St. Elevation-North Side

0 10 20 40
Scale Feet

SOURCE: Clement Chen and Associates

Figure No. 5

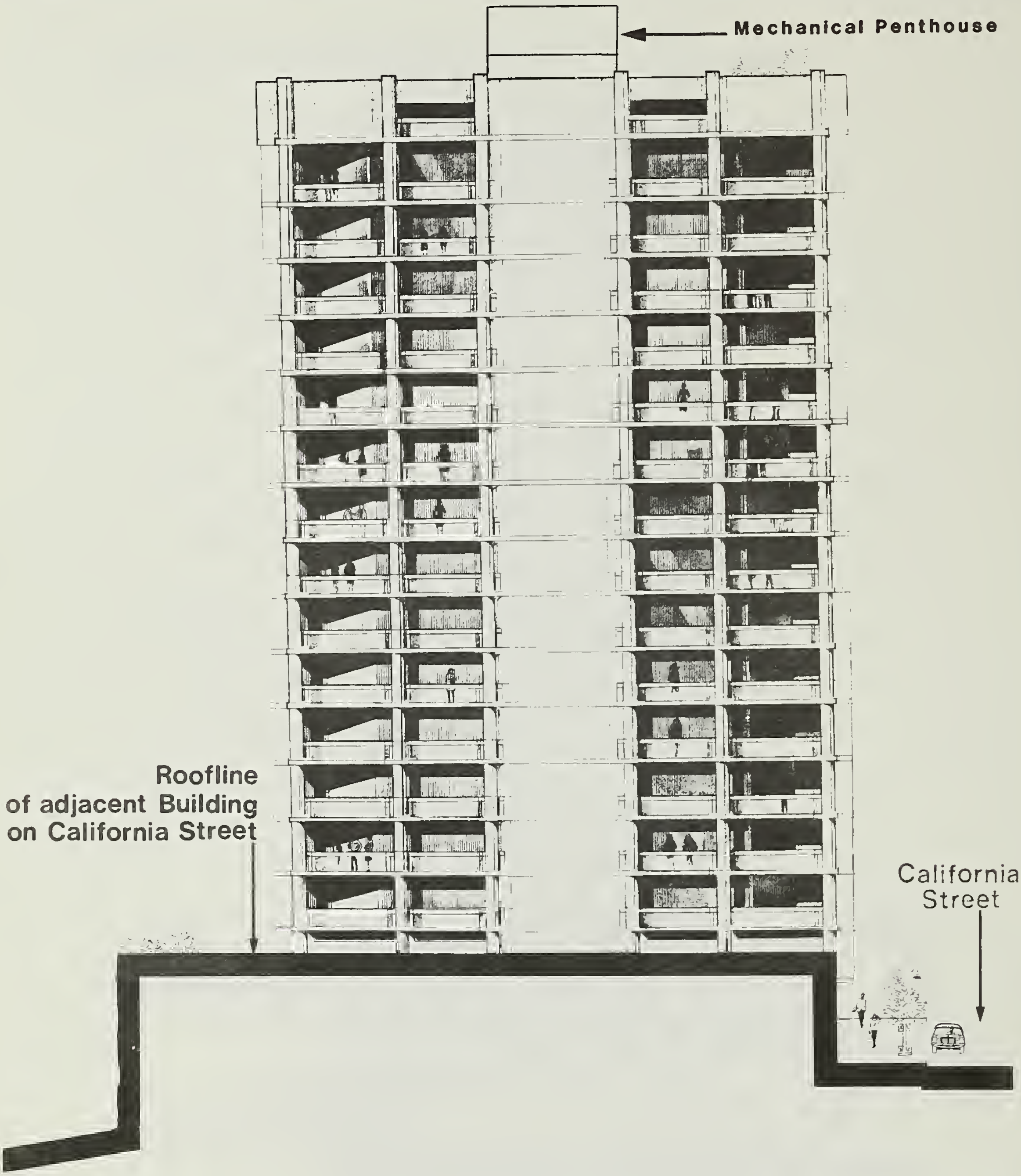


South Elevation

0 10 20 40
Scale Feet

Source: Clement Chen& Associates

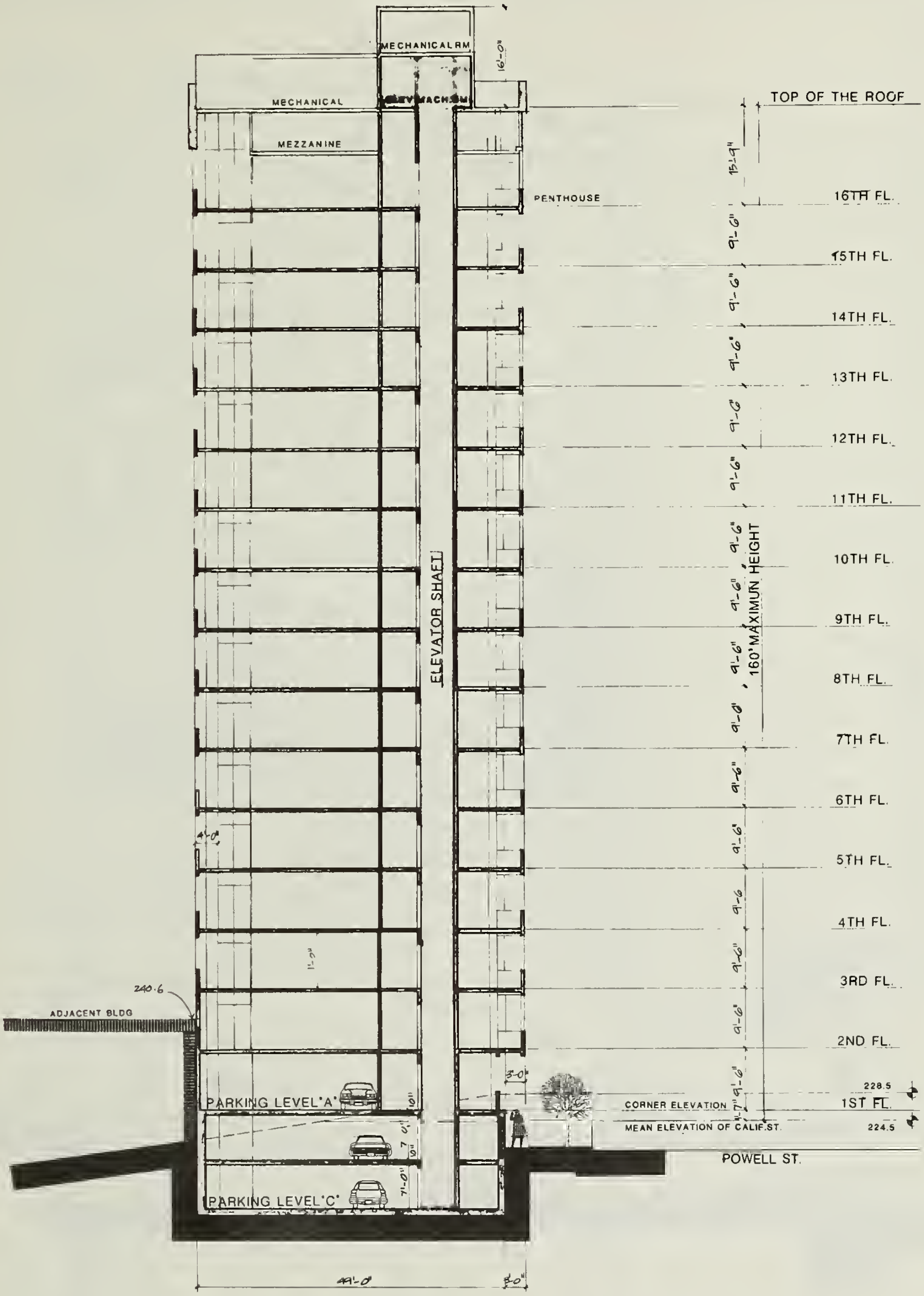
Figure No. 6



East Elevation

SOURCE: Clement Chen and Associates

Figure No. 7



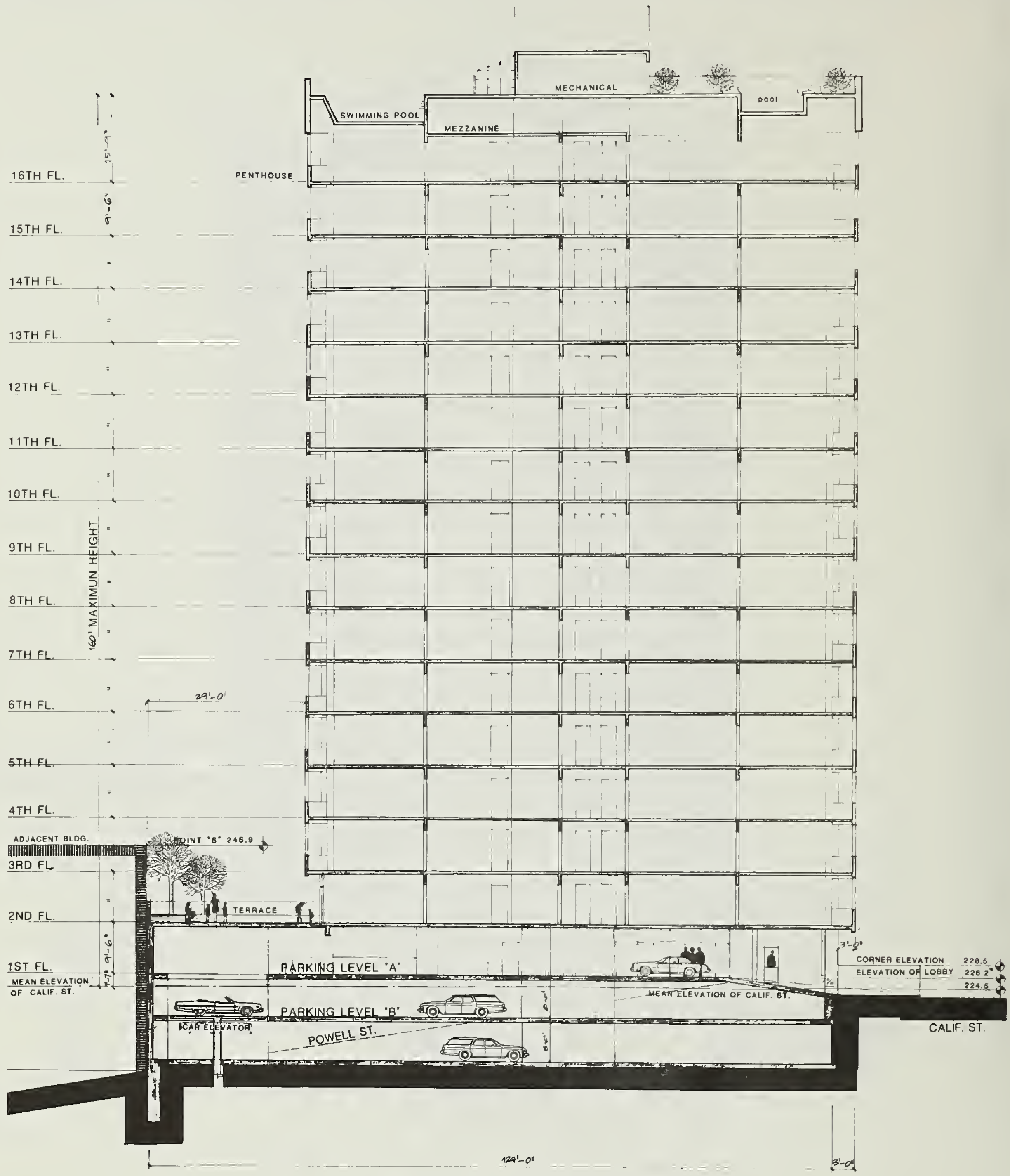
SECTION A-A (See Figure 10)

Section Through Building Looking South

0 10 20 40

Scale Feet

Figure No. 8

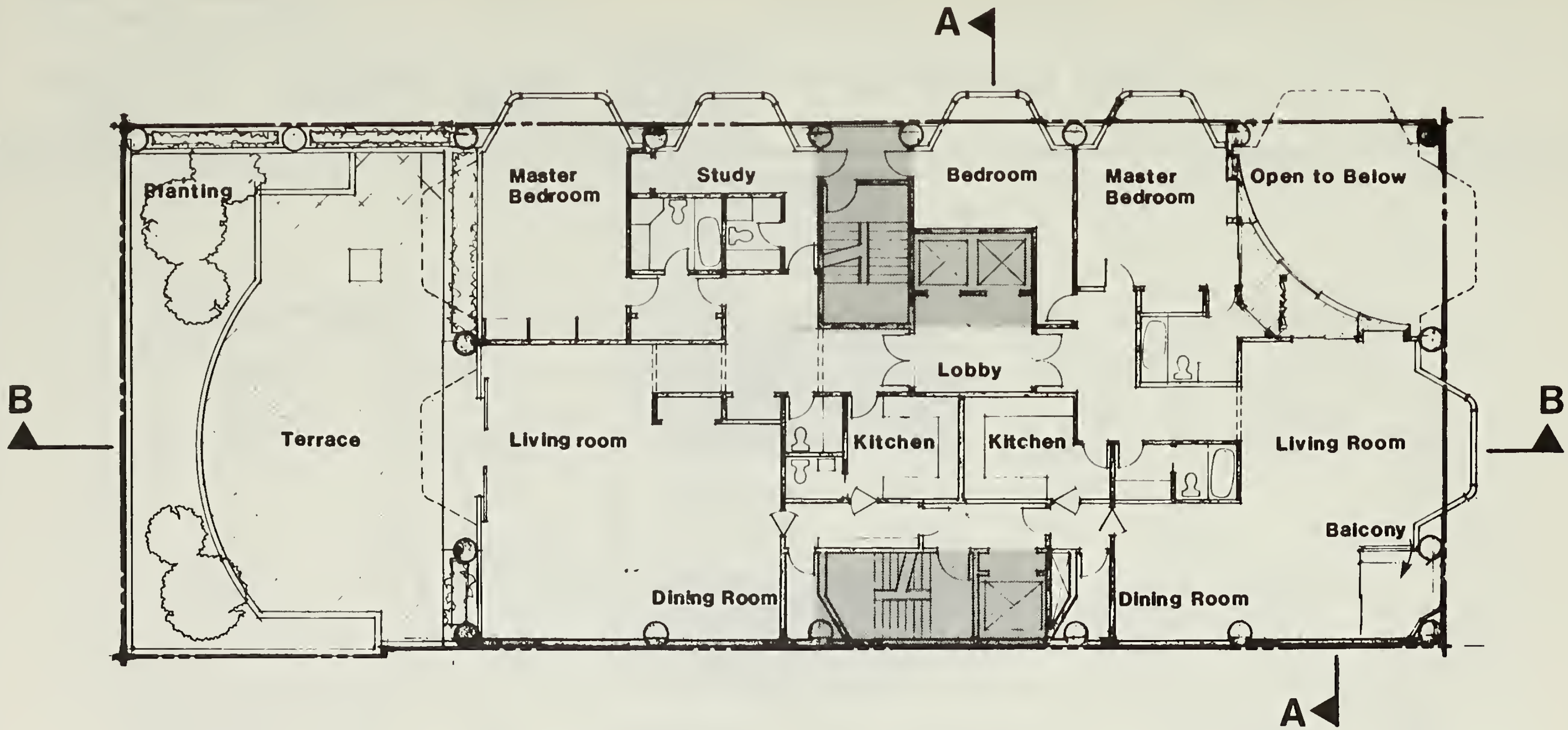


SECTION B-B (See Figure 10)

Section Through Building Looking West

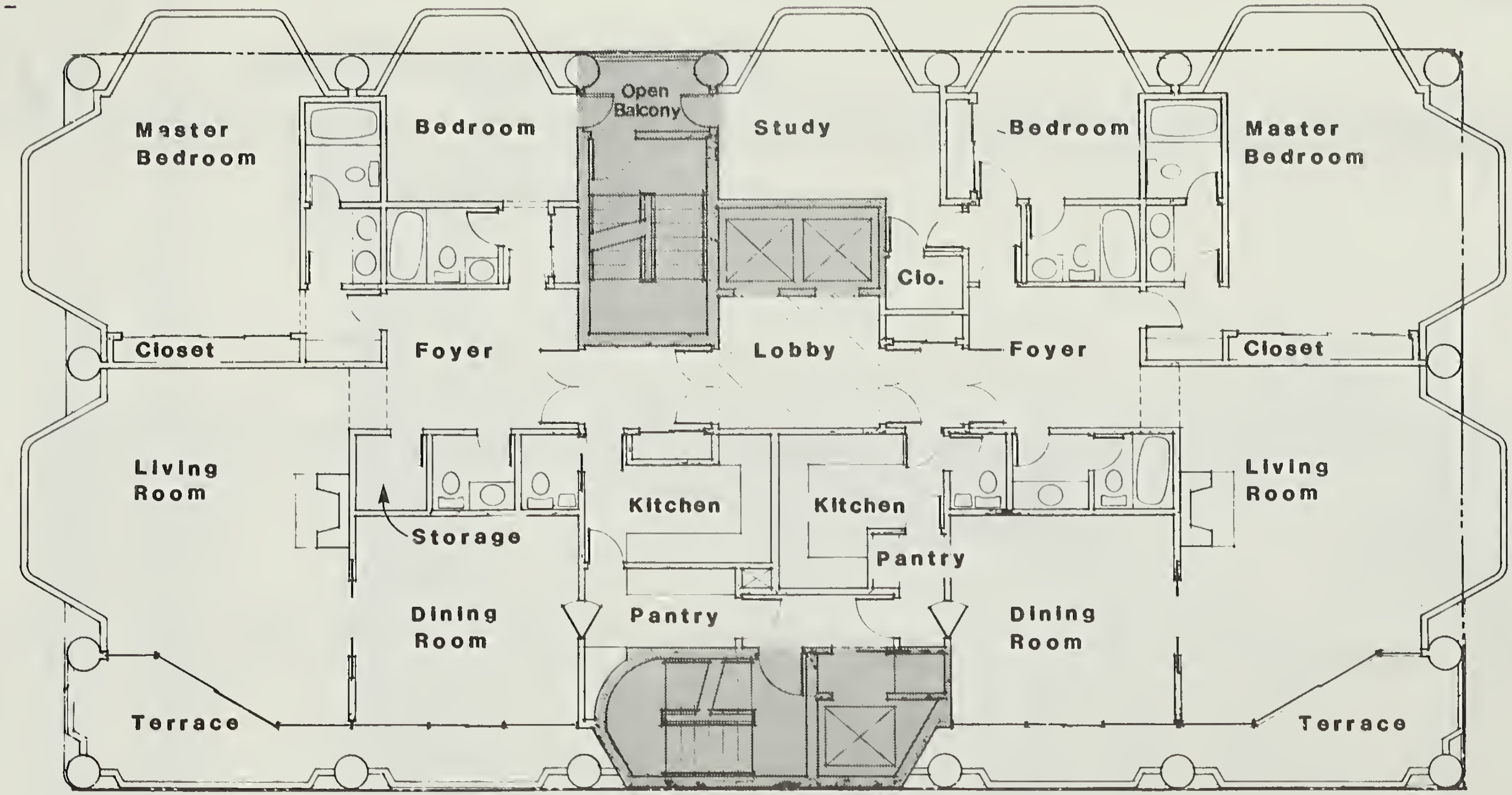
0 10 20 40
Scale Feet

Figure No. 9



Second Floor Plan

Figure No. 10 Source: Clement Chen and Associates



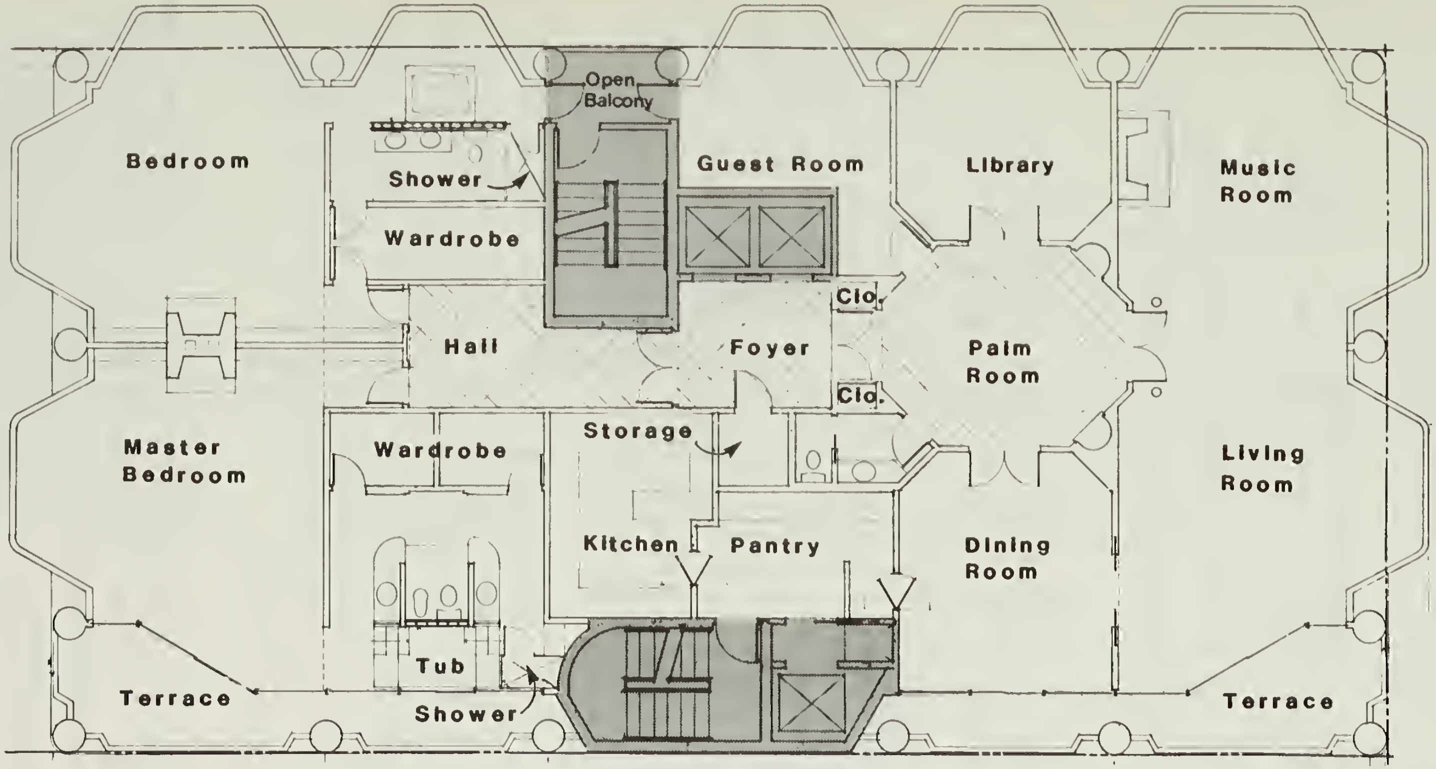
North

0 5 10 20
Scale Feet

Floor Plan – 2- & 3- Bedroom Units Floors 3 to 15

Figure No. 11 Source: Clement Chen and Associates

LEGEND:
Common Areas



North

0 5 10 20
Scale Feet

Typical Full Floor Plan (4-Bedroom Unit)

Figure No. 12 Source: Clement Chen and Associates

LEGEND:
Common Areas

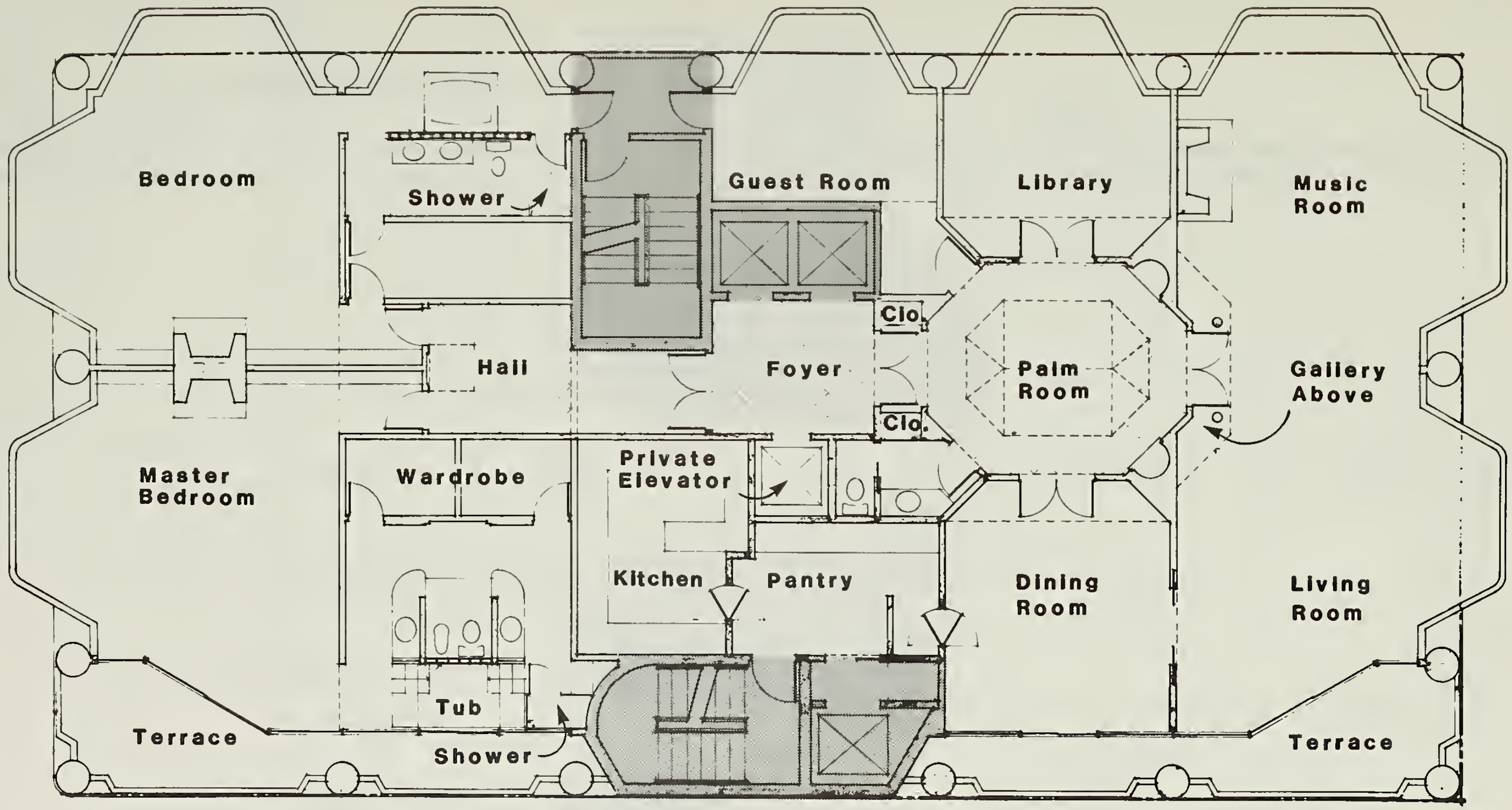
The project sponsor intends to begin sales prior to completion of construction. Prospective tenants would be allowed to participate in design of individual floor plans. It is planned that the second floor would contain two 2-bedroom units. Floors three through fifteen would contain 2-, 3-, and 4-bedroom units. Each floor could contain two 2-bedroom units, one 2-bedroom unit and one 3-bedroom unit, or one 4-bedroom unit. The penthouse would be a four-bedroom unit with a mezzanine (see Figures 13 and 14, pages 21 and 22). Regardless of the final unit mix, the project would contain no more than 29 units with approximately 73 bedrooms, including studies which could be converted to bedrooms. To assess project impacts, this report has been prepared assuming all studies would be converted to bedrooms.

Elevators would provide access to each unit through a private lobby on each floor. Common access to stairwells and emergency fire escapes would be provided.

The building would be constructed of reinforced concrete. Exterior building walls would be of precast concrete panels and glass. The rooftop would contain an open air landscaped garden, greenhouse, recreation room, sundeck, hot tub and swimming pool for the use of penthouse occupants (see Figure 15, page 23). A second level 1,500-square-foot outdoor terrace (see Figure 10, page 17) located over the parking garage would be provided for the use of residents occupying the unit adjacent to the terrace. A balcony would be provided (of about 155 square feet) on the east side of the building for each unit.

Mechanical equipment to drive the elevator and a hot water boiler for the building would be housed in a rooftop penthouse. Heating furnaces and optional air conditioning equipment would be located in each condominium unit. Ventilation ducts are planned to exhaust each unit's kitchen and bathrooms independently to the side of the building. Final building design may consider a central ventilation system. A water pump and possibly a water softener would be located in either the basement or on the roof. The master television antenna would be on the roof.

The project would provide 30 self-park parking spaces on three levels (see Figures 16, 17 and 18, pages 24, 25 and 26), one space in excess of the one per unit required by the San Francisco City Planning Code (Section 151). Two handicap spaces (required by Planning Code Section 155(e)) and two bicycle spaces (required by Section 155(f)) would be provided. Three compact car parking spaces would be provided (as allowed by Section 154(a)2).



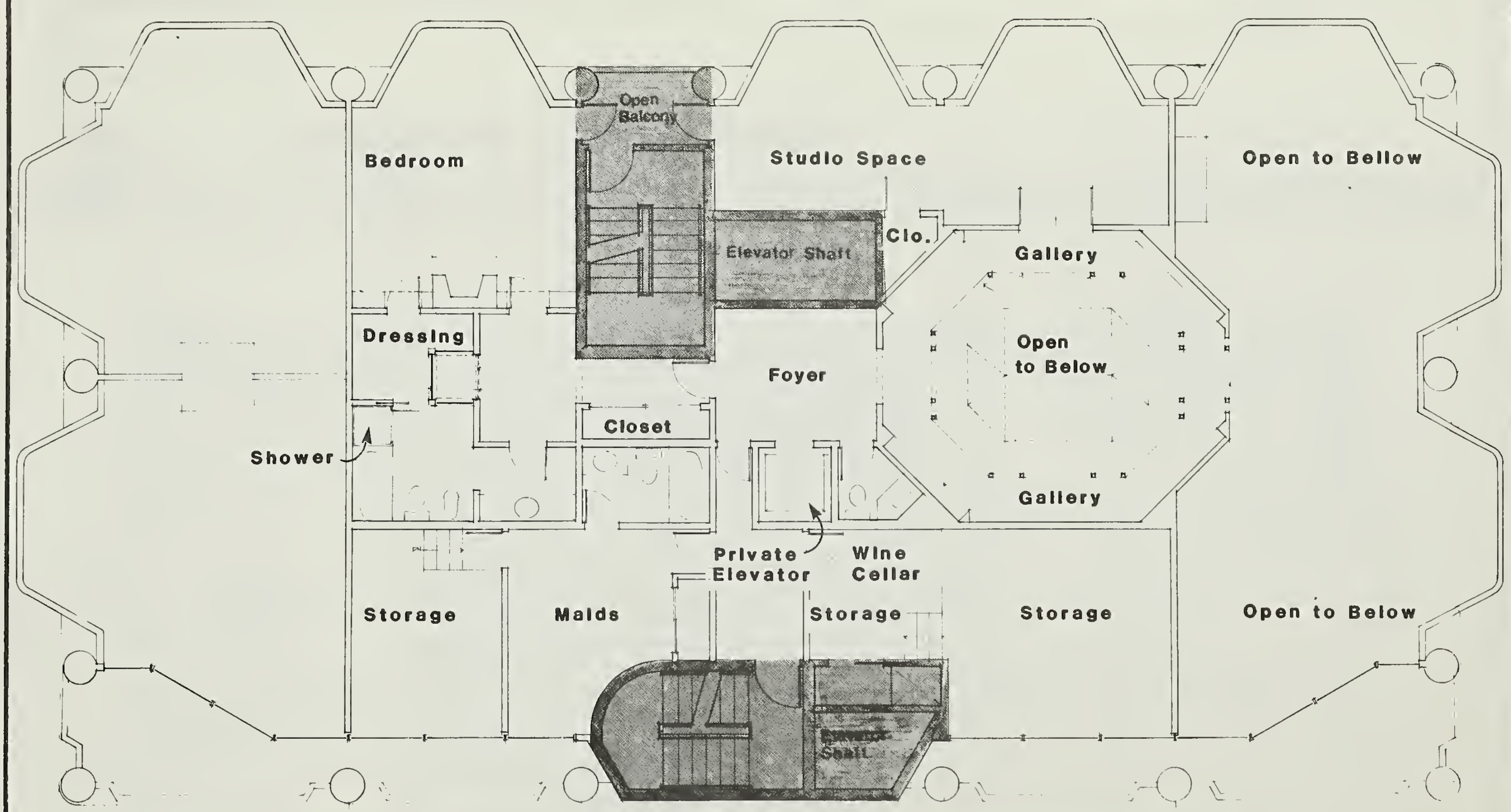
North

0 5 10 20
Scale Feet

Penthouse Floor Plan

Figure No. 13 Source: Clement Chen and Associates

LEGEND:
Common Areas



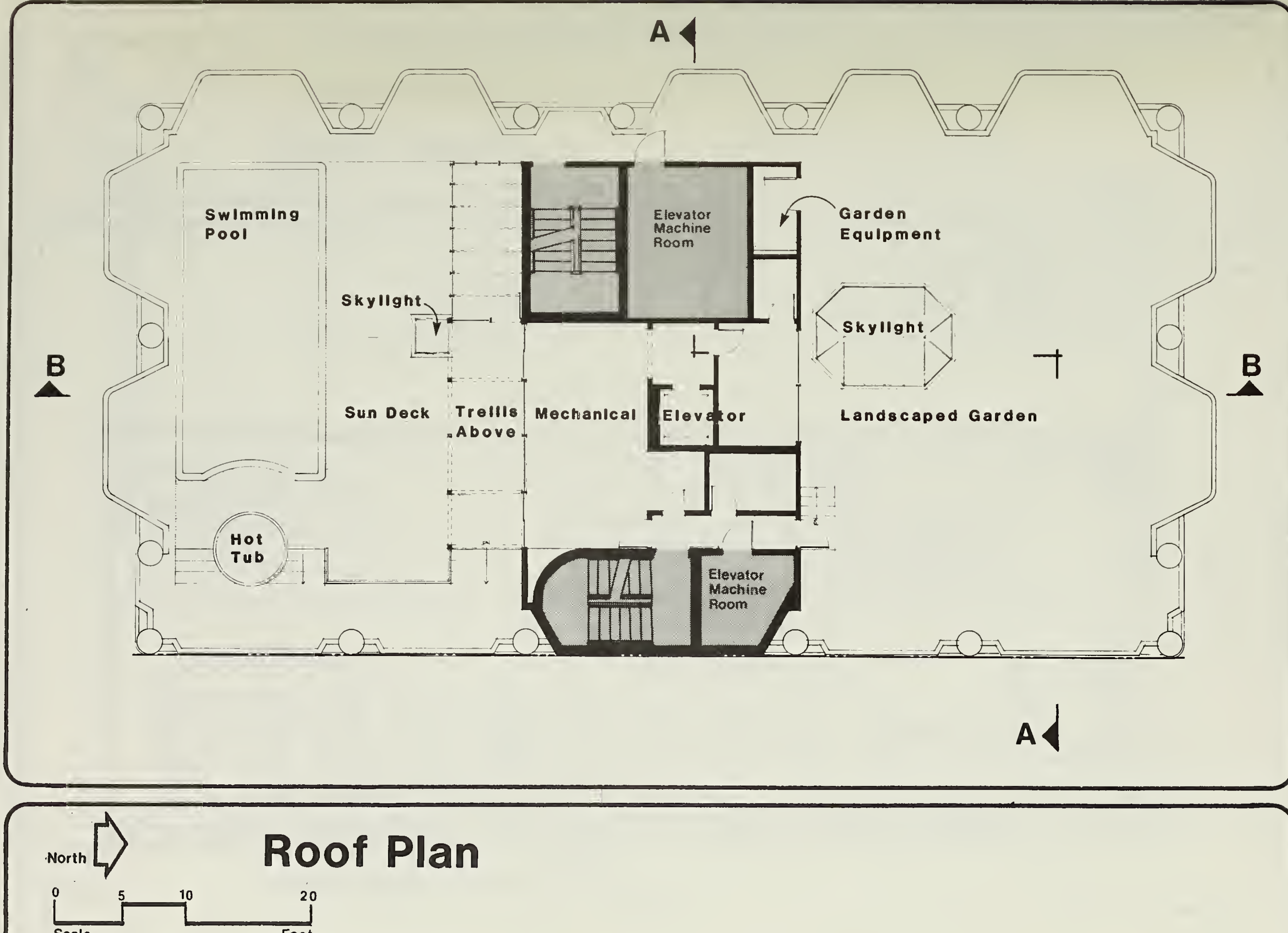
North

0 5 10 20
Scale Feet

Mezzanine Floor Plan

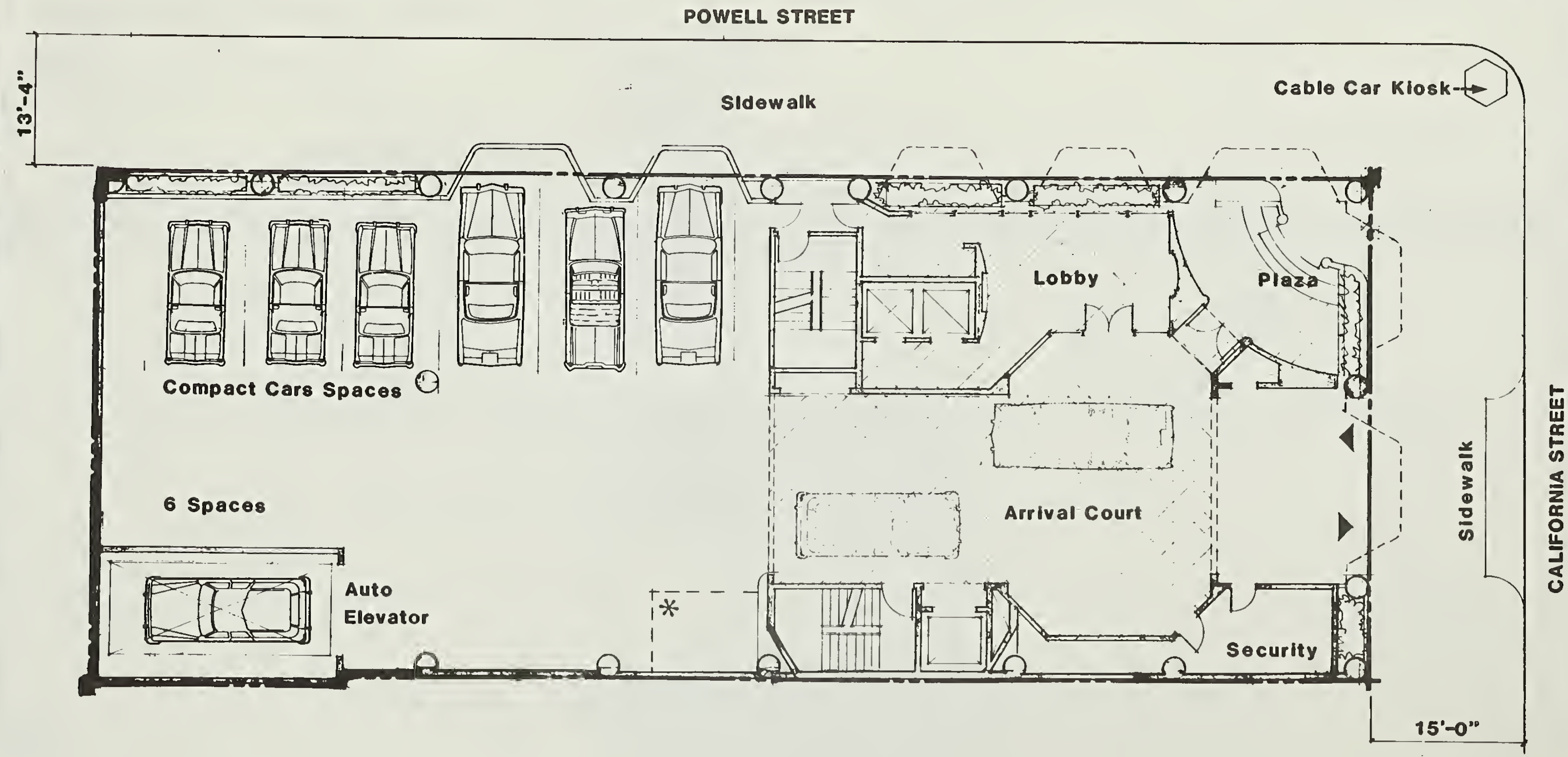
Figure No.14 Source: Clement Chen and Associates

LEGEND:
☐ Common Areas



Roof Plan

Figure No. 15 Source: Clement Chen and Associates



*Alternate parking space for bicycles

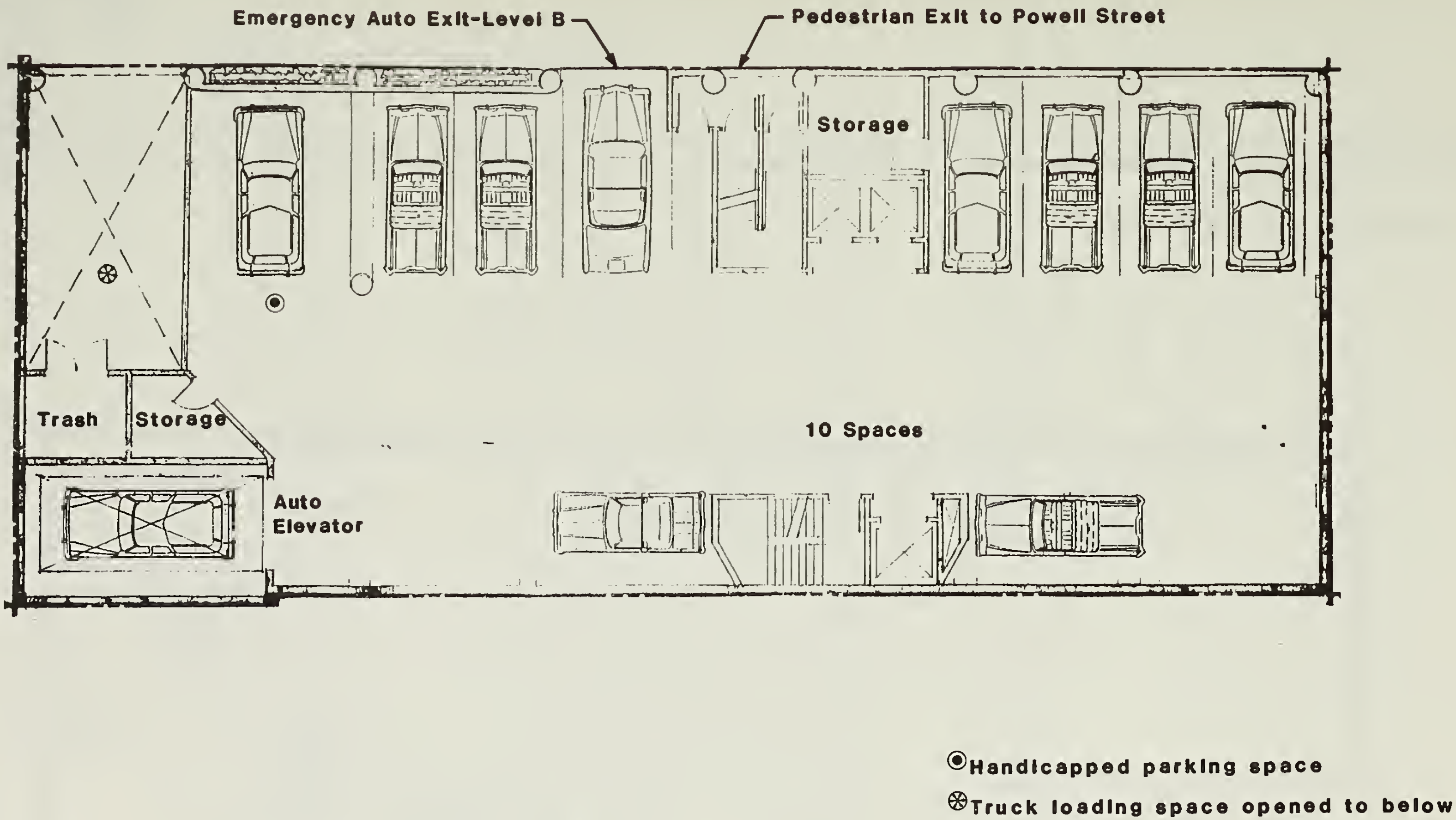
North

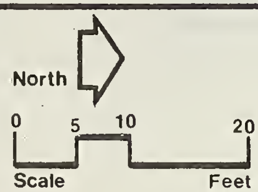
0 5 10 20
Scale Feet

Figure No. 16 **Entry Level**

(Parking Level A)

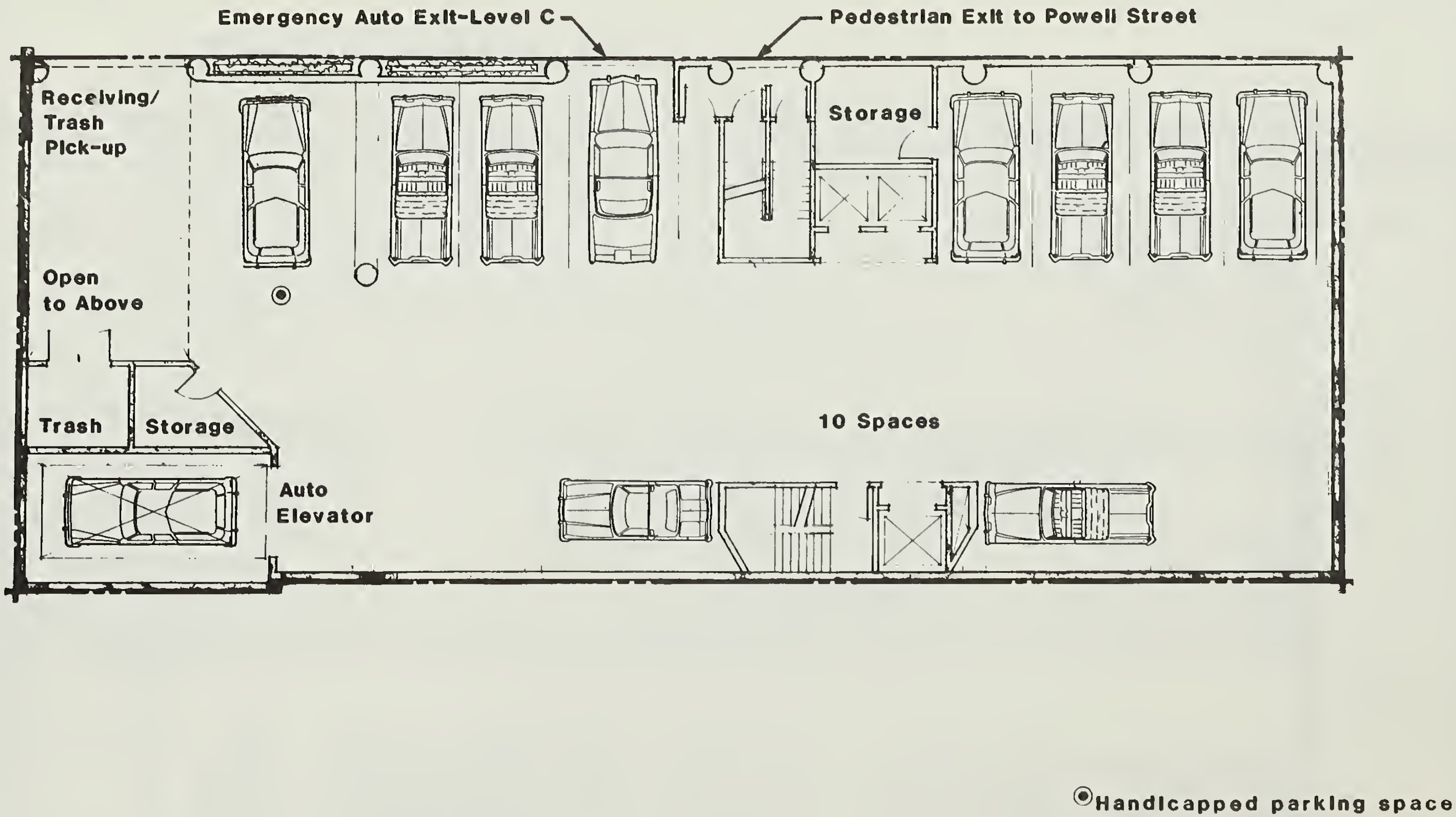
Source: Clement Chen and Associates

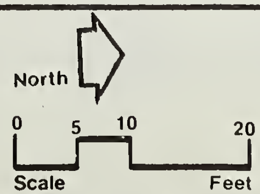




Parking Level B

Figure No.17 Source: Clement Chen and Associates





Parking Level C

Figure No. 18 Source: Clement Chen and Associates

The lower parking levels (Levels B and C) would have access to the upper level (Level A) via an automobile elevator. The parking entrance to the project would be via a 17-foot wide driveway into the upper parking level from California Street. Automobile access to the building would not be allowed from Powell Street. Each of the lower parking levels would have an emergency exit driveway onto Powell Street, to be used in the event the auto elevator is inoperable. The emergency auto exit would be barricaded and would be controlled by project security personnel.

The project would contain a single freight loading/trash pick-up space (none are required for this project according to Code Section 152) on Level C of the parking garage (see Figure 18, page 25). This space would have direct access to Powell Street using the emergency access driveway.

Taxis and other automobiles would be able to use the arrival court area on the ground floor, accessible via the California Street driveway (see Figure 16, page 24).

Without optional special interior finishing, the two-bedroom units would be priced (in 1982 dollars) at about $1,000,000; three-bedroom units would be priced at about $1,300,000, the four-bedroom units would be priced at about $2,500,000; and the 16th-floor penthouse would be priced at about $4,300,000. Construction cost is estimated to be $23.5 million (1982 dollars). The fair market value of the proposed project would be approximately $38.6 million (1982 dollars) based upon the costs for construction, interim financing, sales, design fees, development costs (legal, filing, license, permits), land costs and financial return to the developer.

Construction drawings would be completed about four months after necessary project approvals. Groundbreaking would occur three to four months after the completion of construction drawings. Construction would take about two years, and occupancy would follow completion of construction by approximately three months. Thus, the project would be expected to be occupied about three years from the date of approval.

D. ZONING AND REQUIRED APPROVALS

The project would comply with the density requirements for this RM-4 (Mixed Residential, High Density) District and the height and bulk limits for its 160F Height and Bulk District (see Section II. Environmental Setting, A.2, page 29).

The project would require Conditional Use authorization according to Planning Code Sections 253(a) and (b) which require such approval for buildings above 40 feet in residential districts of the City. The project sponsor has filed (CU 78.71) for this Conditional Use authorization. The application authorization would be considered by the City Planning Commission at a public hearing after certification of the Final EIR.

The project would require a Variance to Section 136 (c) 26 which allows an underground garage if its top surfaces are developed as usable open space, provided that no such garage occupies any area within the rear 15 feet of the depth of the lot; and to Section 136(c) 24(B) which limits the floor of a deck to three feet above grade. A Variance would be necessary as the project design would call for the underground garage to be constructed to the property line (i.e. within the rear 15 feet of the lot), approximately 16 feet above grade (see Figure 4-A, page 11).

The project sponsor must obtain approval to subdivide the property pursuant to Section 1303(c) of the San Francisco Subdivision Code before sale of the condominiums. The application must be filed with the Department of Public Works for subdivision review and would be referred by that department to the Department of City Planning for review as to conformance to the Master Plan and City Planning Code provisions. Pursuant to Section 1332 of the San Francisco Subdivision Code, the City Planning Commission must hold a public hearing to determine consistency of the subdivision application with the Master Plan. The subdivision application would probably be considered by the City Planning Commission at the same time as the conditional use application.

II. ENVIRONMENTAL SETTING

A. LAND USE

1. Site History

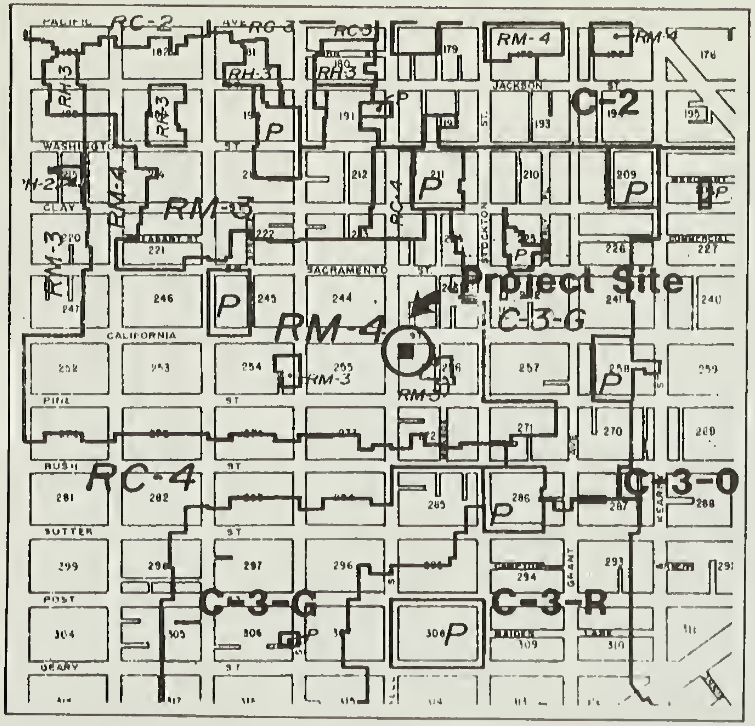
A three-story apartment building on the site was demolished in 1970. In that year a conditional use permit was granted for a temporary parking lot. The conditional use permit was continued in 1974 (CU 72.64), in 1976 (CU 76.28).

The site has been the subject of several development proposals requiring environmental evaluation. A completed EIR (EE 73.165) for a proposed 35-unit condominium project, was certified by the City Planning Commission on January 31, 1974 and a Preliminary Draft EIR (EE 74.310) was prepared for a 26-story structure which would have exceeded the height limit. No further action was taken on this project by the project sponsor and the file was closed. The 1976 CU continuation for parking (CU 76.28) received a negative declaration on July 27, 1976 (EE 76.27). Environmental evaluation EE 76.349, was prepared for a proposal to construct a 25-floor condominium project. A request for permit approval for this project was withdrawn on April 12, 1977.

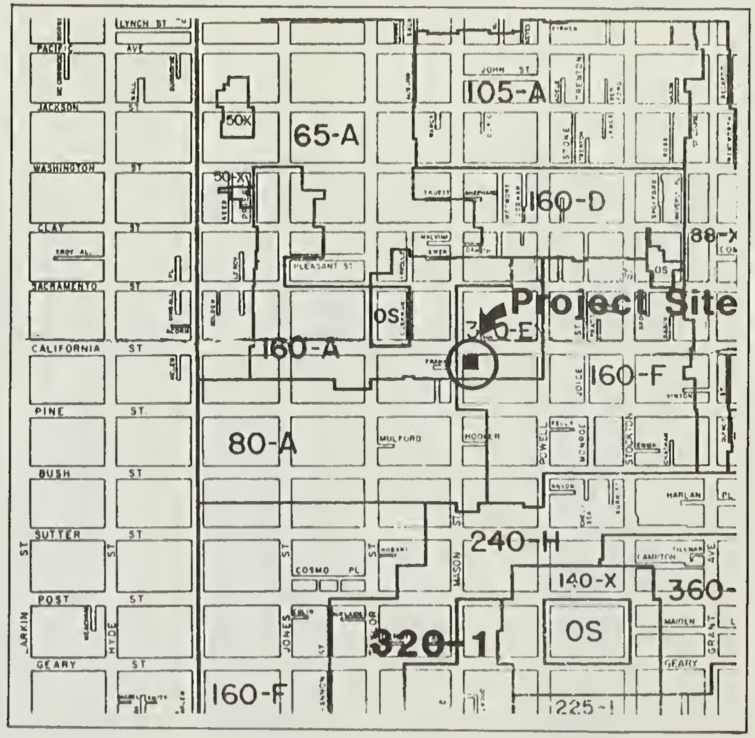
2. Zoning

The site is in an RM-4 (Mixed Residential, High Density) District (see Figure 19, page 30). For this district, a density ratio of not more than one dwelling unit per 200 square feet of lot area with associated open space of not less than 36 square feet per unit, a minimum rear yard requirement of 25% of lot depth, and parking at not less than one space per unit are required by the Planning Code. The basic floor area ratio (FAR) of 4.8 to 1 for RM-4 districts, does not apply to dwellings (Planning Code Section 124 (a) and (b)).

Principal uses permitted by the Planning Code, Section 209.2 in an RM-4 district include 1-, 2- and 3-family dwellings, group housing, residential and child care facilities, open space and public structures. Examples of group housing permitted in RM-4 district include boarding houses, guest houses, rooming houses, lodging houses, residence clubs, communes, fraternities, sororities, and housing for religious orders.



RM-3=Residential, mixed, medium density district
RM-4=Residential, mixed, high density district
RC-4=Residential-commercial combined, high density district
P=Public use
C-2, C-3-0, C-3-G, C-3-R = Commercial Districts



OS OPEN SPACE DISTRICT

NUMBERS ARE HEIGHT LIMITS IN FEET

LETTER SYMBOLS REFER TO BULK LIMITS IN CITY PLANNING CODE SEC. 270.

00-Z

North

0 400 800 1600

Scale Feet

Zoning/Height and Bulk Districts

Figure No.19

Source: City and County of San Francisco

The project site is located within the Nob Hill Special Use District so designated "to provide for an established area with a unique combination of uses and a special identity." In this district hotels, inns or hostels may be allowed with Conditional Use authorization, as may incidental commercial uses (Section 238 (a) and (b)). The requirements for this district, as outlined in Section 238 of the Planning Code, would not apply to the proposed project, as no hotel or commercial use is planned.

The site is in a 160F Height and Bulk District (see Figure 19, page 30) which allows a maximum building height of 160 feet. Above 80 feet a maximum building length of 110 feet and a maximum diagonal dimension of 140 feet may be permitted. The requirements of Sections 253(a) and (b) of the City Planning Code, which state that no building in a residential district may exceed 40 feet in height without conditional use authorization, also apply.

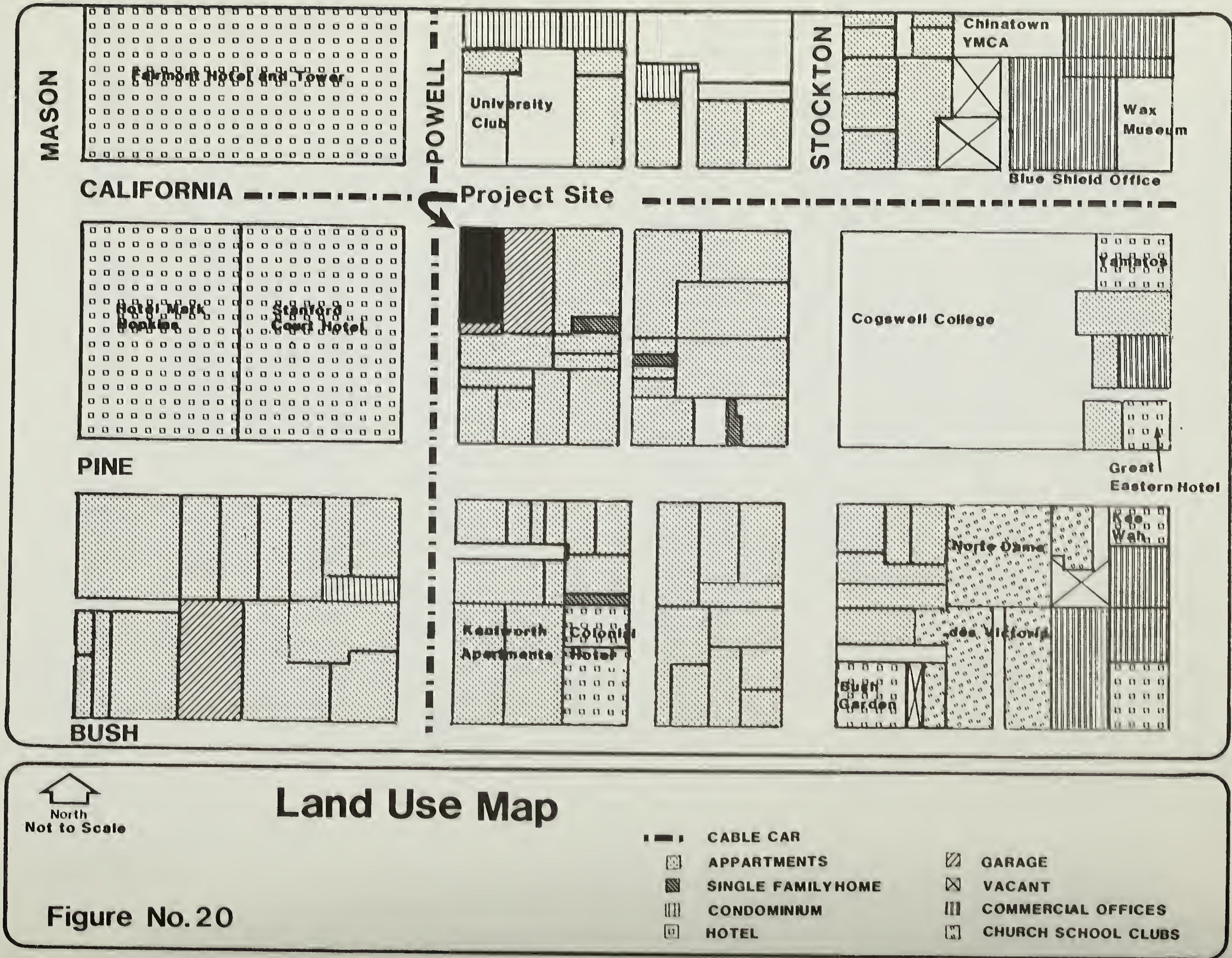
The project site is now used as a 17-space parking lot. Principal land uses surrounding the site include a mix of hotels and multi-unit residences, with scattered other uses such as the University Club, a YMCA and an office building (see Figure 20, page 32). The project vicinity is known especially for its hotels, including the Fairmont, Mark Hopkins, Huntington and Stanford Court.

3. Historical and Architectural Resources

The project area contains structures which are considered architecturally significant. Table 1, page 34, lists buildings in the project area which are included in the 1976 architectural survey of the Department of City Planning, with a survey rating of three or greater (see also Figure 21, page 33).

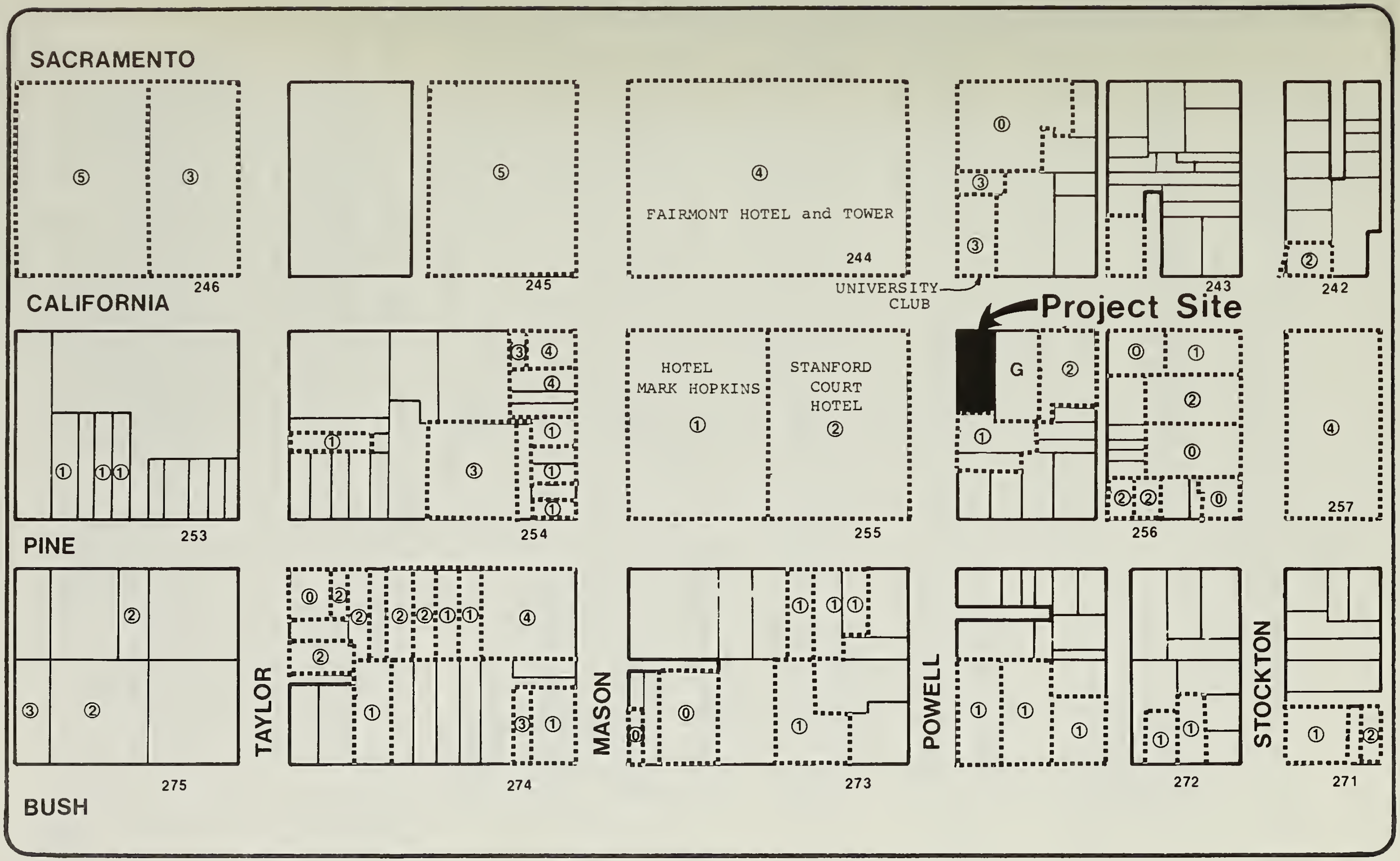
The Pacific Union Club, the former Flood Mansion, about one block northwest of the site, has been placed on the National Register of Historic Places. The building is both a San Francisco and a California State Landmark. The Dennis T. Sullivan Memorial Fire Chiefs Home, located two blocks south of the Pacific Union Club, is also a San Francisco Landmark. The project area was included in the secondary survey area for the San Francisco Downtown Architectural Heritage survey[1]. Buildings in the secondary survey area were not rated by the survey.

[1] The Foundation for San Francisco's Architectural Heritage, Splendid Survivors, San Francisco Downtown Architectural Heritage, 1979.



Land Use Map

Figure No. 20



North
Not to Scale

Historically Rated Buildings

LEGEND:

See Table 1 for listing of significant buildings.

② Building included in 1976 DCP Architectural Survey (DCP rating shown)

Figure No. 21

TABLE I

ARCHITECTURALLY SIGNFICANT BUILDINGS IN THE PROJECT AREA WITH A RATING OF THREE OR GREATER[1]

Block	Building	Year Constructed[2]	DCP Survey Rating[3]
243	800 Powell (University Club)	1909	3
	830 Powell	1908	3
244	900 Mason (Fairmont Hotel)	1906	4
245	1000 California (Pacific Union Club)	1886 1911	5
246	1100 California (Grace Cathedral)	1925	5
	1055 Taylor (Cathedral House)	1911	3
254	1001 California (Morsehead Apartments)	1914	4
	831-849 Mason	1917	4
	1021 California	1911	3
	930 Pixie		3
257	600 Stockton (Cogswell College)	1908	4
274	901-929 Pine	1908	4
	820 Bush	1916	3
275	972 Bush	1913	3

Source: Department of City Planning 1976 Architectural Survey, August 1976.

[1] See Figure 17, page 32, for the location of architecturally significant buildings. See also Appendix A, page A-1 for a complete list of architecturally significant buildings in the area.

[2] Records at the Assessors ofice, City and County of San Francisco.

[3] DCP Survey refers to an architectural survey of all buildings in the City conducted by the Department of City Planning between 1974 and 1976. Those buildings considered to have architectural value were rated as to the degree of architectural value from a low of "0" to a high of "5". Factors considered included architectural significance, urban design context and overall environmental significance. In the estimation of the inventory participants, buildings rated "3" or better represent approximately the best 2% of the City's architecture.

B. TRANSPORTATION

1. Street Network

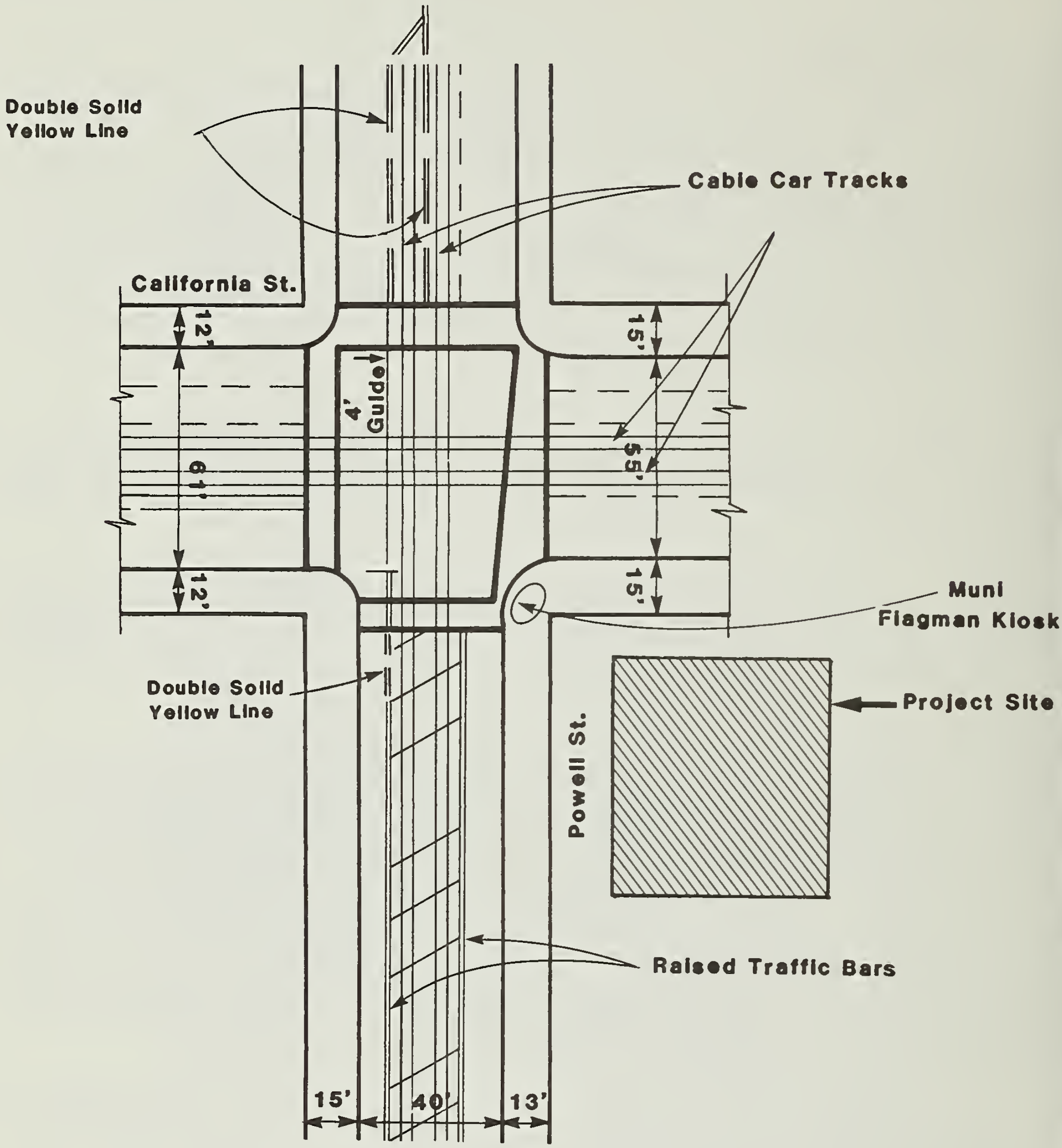
The site is at the southeast corner of the California/Powell intersection. The site is served by a grid network of streets (see Figure 23, page 33). In the vicinity of the site, Pine and Bush Streets are important east-west streets, designated as Major Thoroughfares in the Transportation Element of the City's Comprehensive Plan.[1] Jones Street two blocks south of the site and Montgomery Street four blocks east of the site are north-south streets designated as Major Thoroughfares.

In the vicinity of the proposed project, Stockton, Powell and California Streets are designated "transit preferential streets"[2] in the Transportation Element of the City's Comprehensive Plan.

Pine, California and Sacramento Streets have parking prohibitions, and are tow away zones, between 4:00 p.m. and 6:00 p.m. to facilitate the flow of outbound commuter traffic (see Section II.B.4., page 40).

Immediately adjacent to the project site, Powell Street has a curb-to-curb width of 40 feet and California has a curb-to-curb width of 60 feet (see Figure 22, page 36). Powell is a two-lane (two-way) street with 10-foot travel lanes along each curb and California is a four-lane (two-way) street. The center of both California and Powell Streets contains two-way cable car tracks separated from auto traffic by raised concrete traffic bars. Both Powell and California have about a 17% slope adjacent to the project site (See Section II. F., page 47). With the raised traffic bars, both Powell and California are limited to right-turn access adjacent to the project site.

The California/Powell intersection is controlled by a flashing red signal which acts as a four-way stop. Traffic counts were conducted for this project[3] at the intersection during the p.m. peak period (4:00-6:00 p.m.). The peak hourly counts within this period indicate the intersection is operating at service level D-E or about 85-90% of capacity (see Appendix B, page A-4 for service level definitions). Capacity is reached at level E; thus present conditions approach capacity for the intersection. The traffic counts were conducted during January, a month of relatively low tourist activity. During the peak



NOTE: For Cable Car Passenger Loading Areas, see Fig.26, page

Existing Street/Cable Car Conditions

North

0 20 40 80
Scale Feet

Figure No. 22

tourist season, the volumes would include more tour buses and overall would be about five to ten percent higher.[4] The intersection would then be expected to operate at service level "E" (90-100% of capacity) during the p.m. peak hour. This probably represents a worst-case situation as tourist and resident (commute) peak hours would be expected to be different.

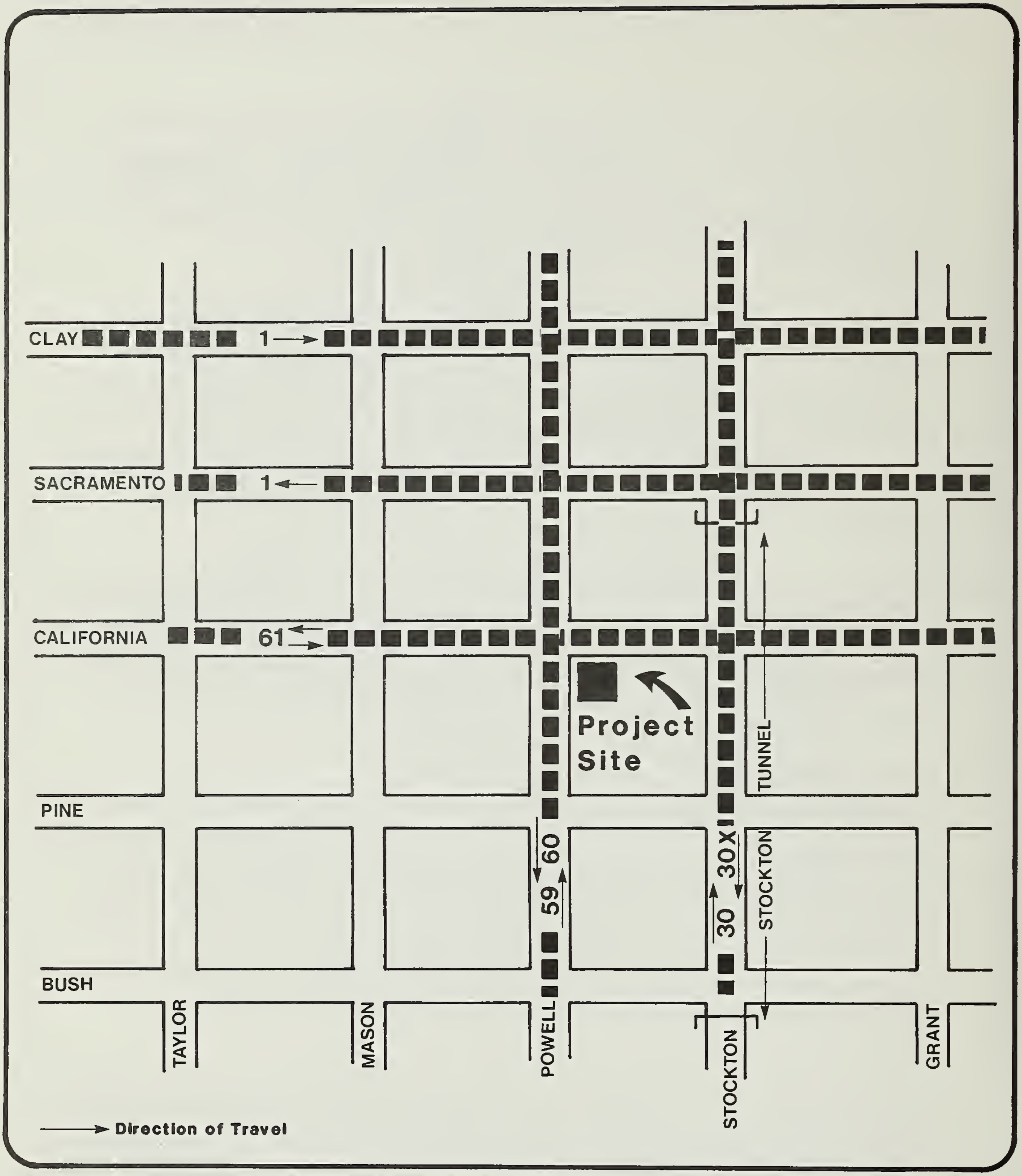
Powell Street north of California Street is 50 feet wide curb-to-curb with cable car tracks continuing in the center of the street. No barrier separation other than pavement striping separates the auto lanes and the tracks. Curbside parking is permitted on Powell Street north of California Street. The Powell Street cable cars have one stop for each direction just to the north of California Street. Further north from California Street, Powell Street descends. A single automobile lane is provided in each direction on Powell north of California.

Approximately the same dimensions and descriptions apply to California Street west of Powell Street as to that portion east of Powell Street, with the exception that no concrete barriers separate the cable car tracks from the auto lanes. Both east and west bound California Street cable cars have a passenger stop to the west of Powell Street.

2. Transit Service

The California/Powell intersection is unique in terms of transit activity.[5] The intersection of three cable car lines causes conflicts between the transit vehicles and automobiles. Muni provides a flagman to help regulate cable car and automobile flows. The flagman also regulates the crossing cable car lines so that the cars can stop at cable car passenger loading points at the California/Powell intersection (at the crest of the hill). There are no other locations where a flagman is used in the City. The Muni flagman is stationed in a kiosk at the southeast corner of the intersection, adjacent to the site.

Existing Muni Transit service within two blocks of the project site is shown on Figure 23, page 38 and in Table 2, page 39. Based upon field review[3] of the cable cars, the load factor[6] on all of the lines was 0.65-0.75. All seats were occupied with some standees on most Powell Street cable cars (lines 59 and 60). In the peak (westbound) direction, California Street cable cars (line 61) also experienced load factors of 0.65-0.75. During the peak tourist season all of the cable car lines experience load factors of 1.5-1.6.[7]



Transit Service in Project Area
(MUNI Lines)

North

NOT TO SCALE

Figure No.23

TABLE 2

MUNI TRANSIT SERVICE
(Transit Service Within 2 Blocks of the Project Site)

Powell Street	
Cable Car Line 59 (Powell & Mason)	Market Street to Fisherman's Wharf
Cable Car Line 50 (Powell & Hyde)	Market Street to Victoria Park
California Street:	
Cable Car Line 61	California Street - Market Street to Van Ness Avenue
North of the Project Site	
1 California Trolley Coach (Clay Street eastbound and Sacramento Street westbound)	6th Avenue and Clement to Sacramento & Drumm Street
Bus Available at Sacramento & Stockton	
30 Trolley Coach	from S.P. Depot (4th & Kearny) - North Beach/Marina
30X Bus	Weekdays, daytime only - from McLaren Park -downtown via Freeway (Route 101 and I-80) and then same route as #30

Source: Muni Planning Department, Service Map, January 1982.

The remaining lines serving the site are all operating at 75-100% of their maximum capacity during the p.m. peak hour (outbound from the downtown). This ridership corresponds to all seats being occupied plus 10-20 standees on each coach.

3. Pedestrian/Bicycle Facilities

Field review[3] indicates that pedestrian activity adjacent to the project site is largely due to cable car passengers. The pedestrian facilities and p.m. peak hour flows are depicted on Figure 26, page 55. The existing pedestrian flows are generally in the open range with no conflicts (see Appendix C, page A-5, for pedestrian flow definitions).

While pedestrian flows on sidewalks and crosswalks tend to be open, pedestrian problems relate to cable car passengers queuing in the street areas. This queuing occurs on the

north leg of Powell and the west leg of California, resulting in pedestrian obstruction of traffic flow.

There are no bicycle routes in the project area designated by the Transportation Element of the San Francisco Comprehensive Plan.

4. Parking

Surveys[3] of on-street parking facilities within a two-block radius of the project site showed that all legal parking spaces were occupied during the survey periods (see Section III.B.4, Impacts, page 57). Excluding yellow, white or green zones, 320 available on-street parking spaces were counted. All spaces counted have one- to two-hour parking time limits (parking is metered on California east of Powell). To facilitate the flow of outbound commuter traffic, several streets have a 4:00 p.m. to 6:00 p.m. parking prohibition and these restrictions reduce the available parking to 190 spaces. Such streets include the north and south sides of Pine Street, the north side of California Street and the north and south sides of Sacramento Street.

Off-street parking facilities within two blocks of the project site the area bounded by Clay, Bush, Taylor and Grant Streets were also reviewed.[3] In this area there are six off-street parking garages containing a total of 1,050 spaces. Based upon field observation[3] and discussions with garage attendants, these spaces have an average occupancy of about 75% during both the day and evening periods. It was determined, however, that the 70-space garage adjacent the project site on California Street (for the use of guests of the Stanford Court Hotel) is essentially 100% occupied during the evening hours. The project site currently contains a 17-space surface parking lot available to the public. Field observation indicates an average daytime and evening occupancy of about 75%-100%.

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[1] Major Thoroughfares are defined as "cross-town thoroughfares whose primary function is to link districts within the city . . . ."

[2] Transit Preferential Street is defined as "an important street for transit operations where interference with transit vehicles by other traffic should be minimized."

[3]Transportation surveys of the project area were made on three occasions during work days: (1) D. K. Goodrich, Traffic Engineer, surveyed traffic conditions at the Powell/California intersection (intersection approachs carry about 1,430 vehicles during the peak hour) and surveyed on-street parking conditions on Monday, January 29, 1979; (2) George Nickelson, Traffic Engineer, took pedestrian counts on Wednesday, November 4, 1981; and (3) surveyed off-street parking conditions on Tuesday, November 10, 1981.

[4]The average occupancy in quality downtown hotels is about 80-86% (Source: Final EIR Hotel Ramada, EE 80.171, SFDCP, certified January 29, 1981. At 100% occupancy, the hotel traffic (in the project area) would be 15-25% higher than projected. Because hotel traffic does not represent all of the area's traffic volume, the increase from tourists during peak season has been estimated at 5-10%.

[5]Susan Chelone, Transit Planner, Muni, San Francisco, California, telephone conversation, November 2, 1981.

[6]Load Factor = ratio of patronage to capacity. Capacity equals 150% of available seats.

[7]Charles Romeyn, Scheduling Section, San Francisco Muni, telephone conversation, March 15, 1982.

C. CLIMATE AND AIR QUALITY

1. Climate

The climate of San Francisco is dominated by the sea breezes characteristic of maritime climates. Because of this steady stream of marine air, there are few extremes of heat and cold. Temperatures exceed 90°F on an average of once a year and drop below freezing on an average of less than once a year. The warmest month is September, with an average daily maximum of 69°F.

Winds in San Francisco are generally from the west and are persistent from May to August. During the rainy season (October to April), the strongest winds blow from the south, the west and the northwest.

Wind tunnel tests were conducted on a model of the existing site for northwestly and westerly winds, the two most frequent directions (see Appendix D, Microclimate Impact Study, page A-6). Wind speeds are interpreted according to the following scale based on information gathered in previous wind tunnel tests. Calibration windspeed refers to windspeed measured by instruments on top of the Federal Building at 50 Fulton Street about one mile southwest of the project site.

Velocity	Percentage of calibration windspeed
Low	0-0.19
Moderately low	0.20-0.29
Moderate	0.30-0.49
Moderately high	0.50-0.69
High	0.70-1.00
Very high	more than 1.00

Under northwesterly conditions the major wind flow is along California Street, with moderately high to high wind currents. For westerly winds, a similar pattern was found, but winds along California Street were less, ranging from low to moderately high. For both northwesterly and westerly winds, flows along Powell Street are low but turbulent. The frequency of uncomfortably windy conditions is relatively high near the Powell/California intersection, affecting pedestrians standing on the intersection corners, with the greatest effect on the south side of the intersection, the corners of which experience moderately high or high windspeeds.

2. Air Quality

San Francisco's consistent summer winds and its upwind position with respect to major pollutant sources continue to give it possibly the cleanest air in the Bay Area. Despite these advantages, there are periods, most often in fall and winter, when the air becomes stagnant. At these times the entire Bay Area has poor air quality.

The prevailing wind pattern in the Bay Area results in a deterioration of air quality east and south of San Francisco. Table 3, page 43 shows that, with the exception of nitrogen dioxide, areas downwind of San Francisco have more severe air quality problems. The main San Francisco air quality monitoring site is located at the Bay Area Air Quality Management District's offices at 900 23rd Street, about one mile south southeast of the project site.

While San Francisco's air quality is better than most locations in the Bay Area, Table 3 shows that the State and Federal air quality standards are not met in the Bay Area. This

has resulted in development of an Air Quality Maintenance Plan (AQMP) for the Bay Area, as part of the Environmental Management Plan (EMP) prepared by the Association of Bay Area Governments (ABAG) and other government agencies.

The Draft AQMP was adopted by the ABAG General Assembly in June 1978, and has yet to be adopted or approved by the U.S. Environmental Protection Agency. A new version of the AQMP which will account for the new ozone standard will be available in the spring of 1982.

TABLE 3

NUMBER OF DAYS SELECTED POLLUTANTS EXCEEDED STATE OR FEDERAL STANDARDS, 1980*

Monitoring Site	Oxidant	Nitrogen Dioxide	Carbon Monoxide	Suspended Particulates	Sulfur Dioxide
San Francisco	0	0	0	6	0
Redwood City	2	0	0	1	0
San Jose	3	1	15	15	0
San Rafael	0	0	0	1	0
Fremont	6	0	0	8	0
Livermore	2	0	0	9	0

Source: Bay Area Air Quality Management District, Air Currents, March 1981.

*The State standards are specific concentrations and durations of air pollutants that reflect the relationship between concentration and undesirable effects. They are target values, and no timetable exists for their attainment. The federal primary standards represent levels of air quality necessary for protection of public health, with an adequate margin of safety. The provisions of the Clean Air Act as amended require that by 1982 (or 1987 in the case of CO and oxidant, if an extension is granted by the U.S.E.P.A.) the federal standards should not be exceeded more than once per year.

D. NOISE

The noise environment at the site is dominated by traffic noise from Powell and California Streets. The major noise sources are cable cars, trucks, autos and tour buses on both streets. To quantify the existing noise environment, a 24-hour noise measurement was made on the west side of Powell Street across from the project site.[1] This location was chosen as the noise exposure here would be most representative of the noise exposure at the building facade of the proposed condominiums on Powell Street.[2] The measurements show that cable cars are the noisiest vehicles impacting the project site. Their wheel-to-rail noise and ringing of the bells attained a noise level ranging between 75 and 83 dBA.[3] (See Appendix E, page A-31 for comparison of typical sound levels measured in the environment and in industry.) During daytime the hourly equivalent noise level (L_{eq}), which is a measure of noise averaged over an hour, ranges from 64 dBA to 67 dBA. During night, from 10:00 p.m. to 7:00 a.m., the hourly L_{eg} ranges from 54 dBA to 65 dBA. The day/night average noise level (L_{dn}), which is a measure of noise averaged over 24 hours with a penalty for nighttime noise was 69 dBA for the site.

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[1] See Appendix F, 24-Hour Environmental Noise Data, page A-33.

[2] The new building would have the effect of blocking the transmission of noise from Powell Street to California Street and vice versa. As a result, the location most representative of conditions to which residents of the proposed project would be exposed is not at the project site (because there is no building there currently) but rather across Powell Street where the geometry is more representative of future project conditions.

[3] See Appendix E, page A-25 for a discussion of acoustical terminology.

E. VISUAL QUALITY AND URBAN DESIGN

Nob Hill is one of the prominent hill forms in San Francisco. On Nob Hill, the combination of topography, views, buildings, cable cars and landscaping contribute to produce the visual character of the setting. The intersection of California and Powell Streets, (Figure 24, page 45), the location of the project site, lies about 50 feet below and east of the summit of the hill. The California and Powell Street cable car lines cross at this intersection and several well-known hotels are in the area (see Section II.A., Land Use, page 31). Tourists and residents may be found in the vicinity of the project site, year round, using hotel facilities, riding the cable cars and looking at views available from the higher portions of Nob Hill.

VIEW SOUTHEAST INCLUDING PROJECT SITE (Cable Car Flagman Kiosk Is In Foreground)

View Southeast Including Project Site

Figure No. 24

North of the project site, across California Street, buildings fronting the 17% (See Section II. F., Geology and Seismicity, page 47) descending grade of Powell Street direct the eye along the Powell Street corridor toward San Francisco Bay and Angel Island. Views east over buildings adjacent to the project site fronting downsloping California Street include the East Bay hills, the City of Richmond and areas that define the North Bay shoreline. The red brick Southern Pacific/One Market Plaza Building near the foot of Market Street terminates views of the San Francisco urban setting to the east, and buildings of the Financial District are part of the views Bayward including the San Francisco-Oakland Bay Bridge and the East Bay. The 52-story Bank of America headquaters building is visually the most dominant structure, defining the western margin of the Financial District.

Views south, from the site along Powell Street include the 450 Sutter Building and nearby mostly three- and six-story structures. Southern views also skirt the west margin of Union Square, the focus of San Francisco's downtown retail activity, and include views of Potrero Hill. Western views along California Street toward the top of Nob Hill are limited by the Stanford Court on the southwest and extend toward the Fairmont and Mark Hopkins hotels; their heights above the hill are emphasized because they are at a higher elevation than the site.

The 15-story Fairmont tower north of the project site is a prominent structure within the field of view rising about 150 feet amongst the four to five-story buildings that surround it. The Fairmont Hotel's tower architecture is less detailed than its lower, bulkier eight-story older structure which includes facade ornamentation characteristic of its earlier period.[1]

A roof garden that contains trees, decorative shrubs, flowers and walkways is located on the roof of the portion of the Fairmont building at the northwest corner of the intersection of California and Powell Streets. The roof garden is set back from the corner, is accessible to occupants of the Fairmont Hotel and is viewed from above in the Fairmont Hotel and Tower. The roof garden is not visible from the street.

The nine-story Stanford Court Hotel is located across Powell Street from the project site on the southwest corner of the California/ Powell Street intersection. The four-story

University Club, is across California Street north of the site. The University Club's lower height provides a visual transition in scale between the taller structures west of the project site and lower buildings to the east and south within the immediate area; the latter are comprised mainly of two- to five-story residences and apartment structures. The project site use as a parking lot does not visually define the intersection's southeast corner.

The colors of building exteriors in the area of the project site include the buff-colored brick of the Mark Hopkins Hotel, the beige-brown concrete block of the Stanford Court Hotel, and red brick of the University Club. Yellow, beige and tan colors have been applied to residential wood-frame buildings east of the project site and most buildings appear to be compatible with each other in their color treatment.

At the pedestrian level, spaces between adjoining buildings are noted to be narrow and the visual setting is urban in character. Unimproved street level open space is currently provided at the project site which contains no structure. Shiny cable car tracks visually define the gridiron alignment of California and Powell Streets.

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[1] Construction of the Fairmont Hotel began in 1903. Here Today, San Francisco's Architectural Heritage; Junior League of San Francisco, Inc., 1978, page 68.

F. GEOLOGY AND SEISMICITY

The proposed project would be on the eastern slope of Nob Hill, at an elevation of approximately +216 feet San Francisco Datum;[1] the hill slopes approximately 17% to the east-southeast.[2]

Nob Hill consists of rocks of the Franciscan Assemblage[3] which contain a mixture of rock types; the type underlying the site is sandstone interbedded with shale. The upper 30 feet of the rocks is weathered, i.e., they have been exposed so that water has percolated through them, creating fractures that make excavation of the material easier than excavating in hard, massive rock. The fractured and weathered sandstone is considered to be good foundation material and has excellent characteristics for foundation support.[4]

There are four major fault zones in the San Francisco Bay Area (Figure 25, page 49) which are capable of causing strong ground motion at the proposed project site.[5] The San Andreas Fault and the Seal Cove Fault are off the Pacific shore approximately nine miles and 14 miles, respectively, west of the project site. The Hayward Fault and the Calaveras Fault are about ten and 20 miles east of the site.

On April 28, 1979 an earthquake occurred along the San Andreas Fault[6] measuring 4.4 on the Richter scale.[7] The event was centered near Pacifica and caused no major damage. On August 6, 1979, a 5.9 Richter magnitude earthquake occurred along the Calaveras Fault, epicentered near Coyote Lake in Santa Clara County.[8] The earthquake was felt in San Francisco as two distinct shock waves; no damage occurred in San Francisco.[8] No active or potentially active faults cross the project site.[5]

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[1] San Francisco Datum is approximately 8.6 feet above sea level.

[2] Percent of slope is calculated as the change in elevation (vertical distance) divided by the horizontal distance.

[3] Franciscan rocks are typical of the northern California Coast Ranges and underlie the hills of San Francisco. They consist of a mixture of dark colored muddy sediments, red, green, and brown cherts and lava flows of black basalt, all material laid down on the floor of the Pacific Ocean about 100 million years ago. Cherts are rocks formed by deposits of silica containing microorganisms, which are transformed into hard, waxy, or porcelain-like rocks. See Roadside Geology of Northern California, David D. Alt and Donald H. Hyman, Mountain Press Publishing Company, Missoula, Montana, 1975.

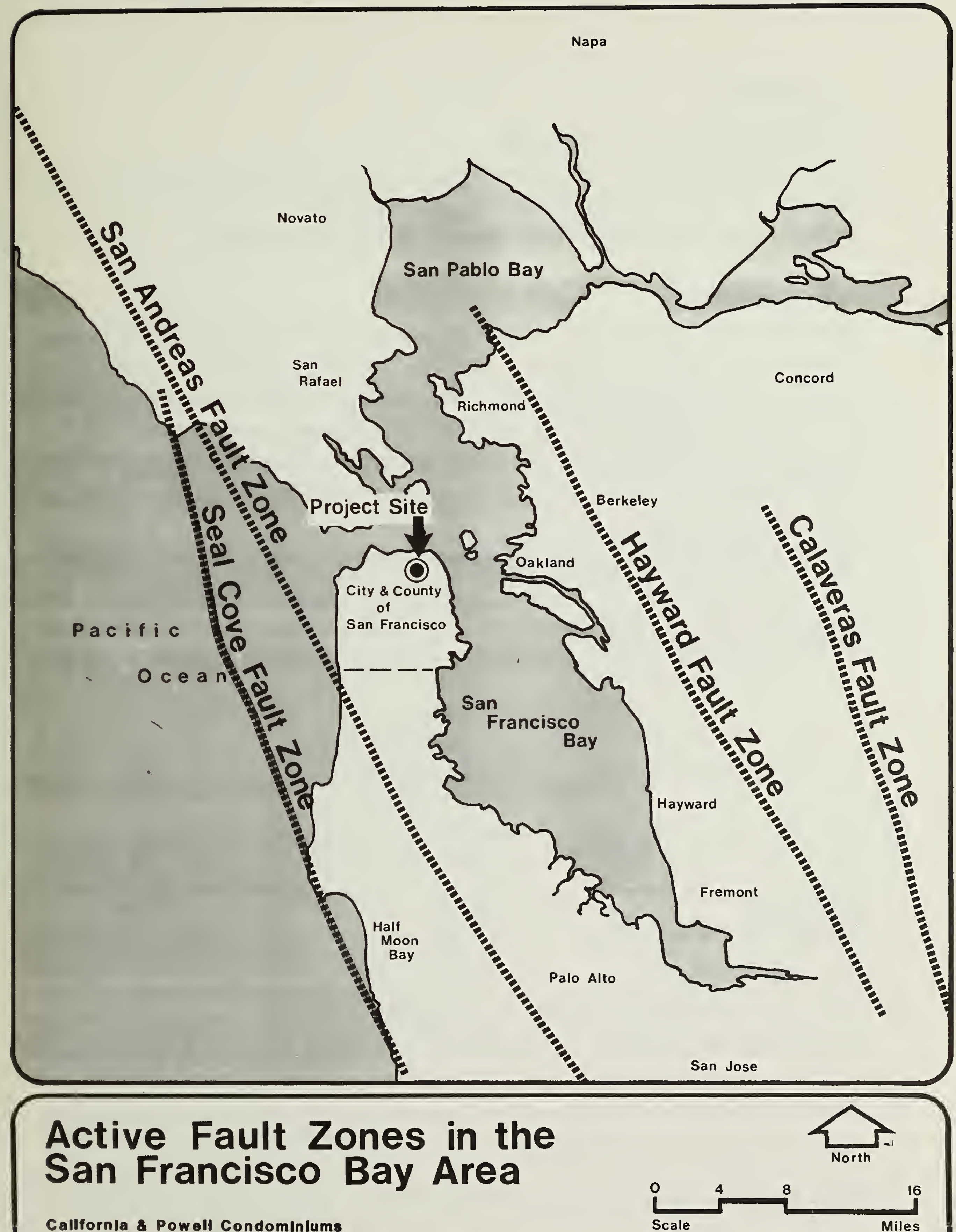
[4] Lee and Praszker, Consulting Civil Engineers, Proposed Apartment Building, SE Corner of Powell and California Streets, San Francisco, California, Job L-569, August 14, 1973. This report is available at the Office of Environmental Review, 45 Hyde Street, for public inspection. (No geologic changes have occured at the site since the preliminary geotechnical report was completed in 1973, therefore no updated preliminary geotechnical report is needed).

[5] C.W. Jennings, "Fault Map of California," California Division of Mines and Geology, Data Map Number 1, 1975.

[6] U.S. Geological Survey, Earthquakes in the United States, 1979, Circular 836, 1980-1981, pages B19 and C19.

[7] Richter Scale: A logarithmic scale developed by Charles Richter to measure earthquake magnitude by the energy released, as opposed to earthquake intensity as determined by effects on people, structures and earth materials.

[8] California Division of Mines and Geology, California Geology, November 1979.



Active Fault Zones in the San Francisco Bay Area

California & Powell Condominiums

Source: California Division of Mines & Geology/ Fault Map, 1975

Figure No. 25

G. ECONOMICS

1. Economic Activity and Employment

A 17-stall parking lot is run as a 24-hour park and lock operation, on the project site. The operation requires part-time employment, the equivalent of less than one job, and generates about $2,300 per month, or about $77 per day in gross receipts.[1]

2. Public Revenue

At present, the site generates property tax and parking tax revenues to the City and County of San Francisco, and property tax revenues to the San Francisco Unified School District, the San Francisco Community College District, the Bay Area Quality Maintenance District, and BART. In fiscal year 1981-1982 public revenue generated is expected to total about $9,900 (see Table 4, below), based on an assessed value of $486,000 (full market value).[2]

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[1] Clement Chen, Clement Chen and Associates, telephone communication, March 26, 1982. The rate is $1.25 per hour at all times up to a maximum of $5 per car per day.

[2] City and County of San Francisco, Assessor's Rolls for 1981-1982. Proposition 13 set assessed value equal to full market value.

TABLE 4

EXISTING PUBLIC REVENUE
BLOCK 256, Lot 16[1]

	1979-1980 Total	1980-1981 Total	1981-1982 Total	1981-1982 City and County[2]
Property Tax[3]	5,700	6,000	5,800	4,600
Parking Tax[4]	3,000	5,700	4,100	4,100
TOTAL	8,700	11,700	9,900	8,700

[1] Does not include payroll expenditure tax on less than one job.

[2] In 1981-1982 fiscal year, San Francisco's share of composite property tax revenues was 79%.

[3] Rate in 1981-1982 was $1.19 times 1% of assessed value: $1.00 for general government purposes, the maximum allowed under Proposition 13; and $0.19 for repayment of bonds previously approved by the electorate.

[4] Rate is 15% of annual gross receipts of $27,600.

III. ENVIRONMENTAL IMPACTS

A. LAND USE

1. Zoning

The project would comply with the requirements of the RM-4 (Mixed Residential, High Density) District. The proposed structure would be 160 feet tall as measured from the mean elevation of California Street adjacent the project site, 93 feet in length, with a diagonal dimension of 105 feet. The 16-foot mechanical penthouse would be allowed by Section 260(b)1(A) of the Planning Code. The project sponsor has filed an application for Conditional Use authorization (CU 78.71), required for buildings above 40 feet in a residential district. The application would be considered by the City Planning Commission at a public hearing after certification of the Final EIR. As proposed, the project would require a Variance to allow parking beneath the required rear yard area.

The RM-4 district, according to Planning Code Section 206.2, contains "almost exclusively apartment buildings of high density, usually with small units, close to downtown. Buildings over 40 feet in height are very common and other tall buildings may be accommodated in some instances. Despite the intensity of development, distinct building styles and moderation of facades are still to be sought in new development, as are open areas for residents." Within a four-block radius of the project site, 11 acres are zoned P (Public Use) District, including five parks. Also within this area are RM-3 (Mixed Residential, Medium Density), RC-4 (Residential - Commercial Combined, Medium Density), and C-3-G (Downtown General Commercial) Districts (Figure 19, page 30). The small areas zoned RM-3 (Residential, Mixed-Medium density) contain apartments of six to ten or more units per structure.

2. Planning

A 17-space surface parking lot would be replaced with a residential structure containing 29 condominium units ranging in size from 2,200 gross square feet to 8,100 gross square

feet. The project would convert a basically vacant site on Nob Hill to residential development.

The Residence Element of the San Francisco Comprehensive Plan[1] includes objectives and policies relevant to the proposed use of the site:

New Residential Development

Objective 2: "Encourage new residential development only when it preserves and improves the quality of life for residents of the City and provides needed housing opportunities" (page 9).

To the extent that housing opportunities would be created for those persons able to afford the estimated $1,000,000 to $4,300,000 sales prices and that these persons are existing City residents, this policy would be met, in part. The project would not increase housing opportunities for less affluent income groups. The project would include no low or moderate units, and would displace no such units.

Policy 2: "Encourage the conversion of underused non-residential land to residential land use" (page 9).

Project implementation would convert a non-residential land use to that of a residential use.

Policy 4: "Encourage construction of a variety of unit types suited to the needs of households of all sizes" (page 9).

The proposed structure would contain 2-, 3-, and 4-bedroom units and a 4-bedroom penthouse. Based upon selling price and design of the units, the project sponsor has indicated that his clientele is expected to be moving from single-family dwellings.[2] The project would be expected to directly provide housing opportunities for predominantly small households with domestic staff.

Housing Costs

Objective 4: "Minimize hardships caused by the increasing cost of housing" (page 18).

At prices of $1,000,000 to $4,300,000 the project would not respond to this policy.

Policy 1: "Preserve and expand the supply of low and moderate income housing" (page 18).

The project would not expand the supply of low and moderate income housing.

Housing Opportunities

Policy 2: "Encourage economic integration" (pages 18 and 19).

The project would add luxury units to the Nob Hill area, thus reinforcing existing trends for high income housing in the area.

Policy 4: "Expand opportunities for home ownership" (pages 18 and 19).

Twenty-nine condominium units would be added to the City's housing supply which would expand ownership opportunities for a particular sector of the housing market, i.e. high income persons.

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[1] City and County of San Francisco "The Comprehensive Plan, Residence Element" adopted by Resolution 7417 of City Planning Commission, December 11, 1975.

[2] Clement Chen, Clement Chen and Associates, verbal communication, March 28, 1979.

B. TRANSPORTATION

1. Trip Generation and Analysis of Street Network

Person-trip generation estimates were prepared on a daily and p.m. peak-hour (4:30-5:30 p.m.) basis. Based upon research conducted by the California Department of Transportation (Caltrans)[1], the project would generate about eight daily person trips per dwelling unit with 10% of the trips occurring during the p.m. peak hour. The 29 units would generate about 230 daily trips with 25 trips during the p.m. peak hour. Vehicle occupancy and modal split estimates were prepared to obtain the number of vehicles that would be generated by the proposed project. Estimated modal splits and trips by mode are shown in Table 5, page 54.

TABLE 5[2]

MODAL SPLIT/TRIPS

Mode	Percent	Person-Trips Daily	Person-Trips P.M. Peak Hour
Auto	40%	90	10
Transit	10%	25	3
Walking	10%	25	3
Taxi	40%	90	9
TOTAL	100%*	230	25

*Truck traffic would represent less than one percent of the total trips[3]

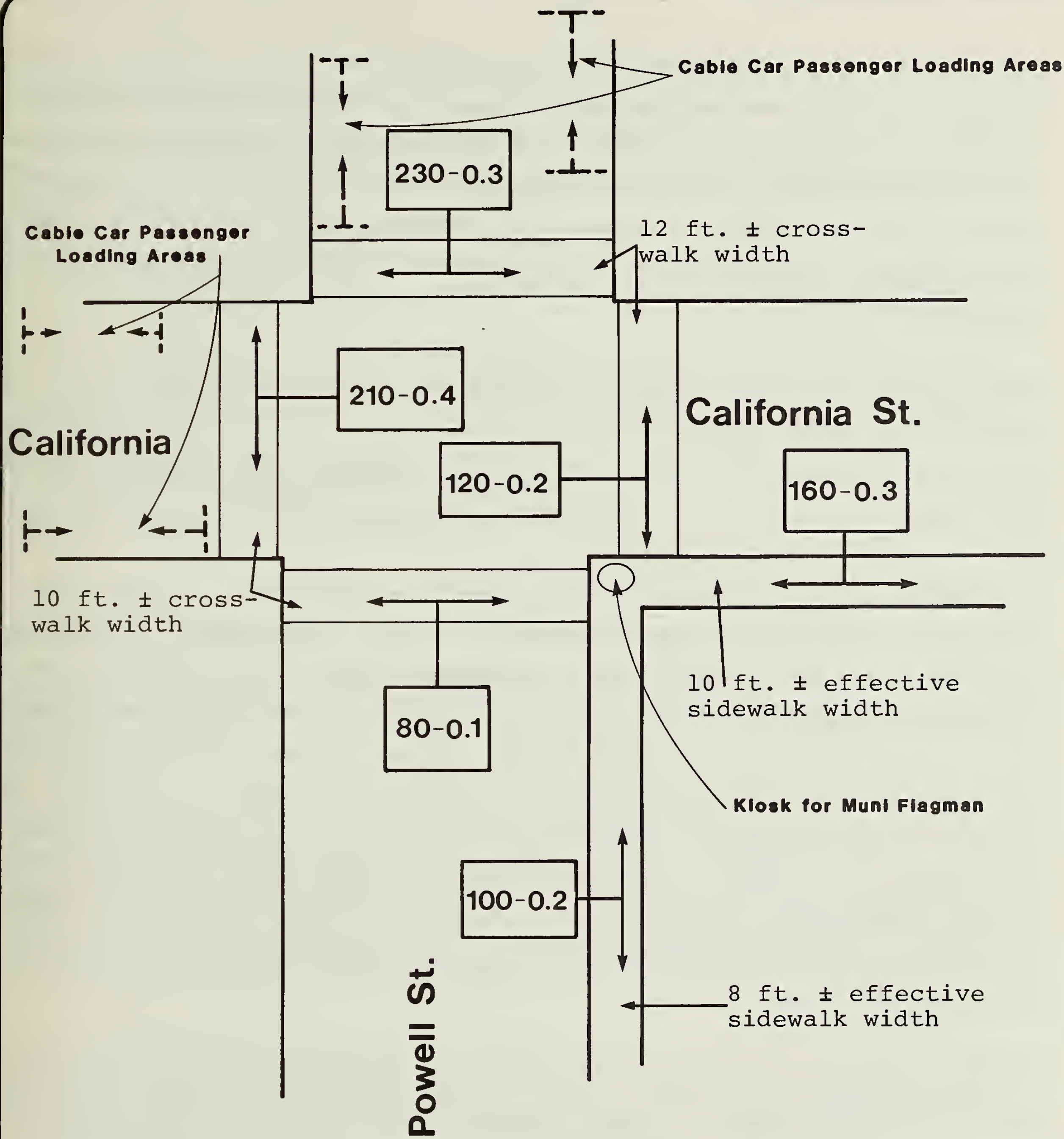
An average auto occupancy of 1.3[3] persons per vehicle was assumed for all auto and taxi trips to and from the project site. The project would generate about 140 daily vehicle trips including 14 vehicle trips during the p.m. peak hour.

An intersection analysis was conducted for the Powell Street/California Street intersection.[4] Results were calculated for 1) existing conditions during the p.m. peak hour (as determined from the previously noted January 29, 1981 field count), and 2) the additional vehicular traffic projected from the proposed project.

The intersection now operates at level of service D-E (85-90% of capacity) during the p.m. peak hour generally and at service level E and 90-100% of capacity during the tourist season. The inclusion of proposed project traffic (approximately 14 vehicles during the p.m. peak hour) would add about one percent to existing volumes and would not change the level of service at the intersection. It is recognized, however, that the intersection is approaching capacity and experiences congestion and delays during the peak hour.

2. Pedestrians

The project would generate about 50 daily and six p.m. peak hour pedestrian trips (includes walking to/from transit). Figure 26, page 55, shows existing pedestrian conditions during p.m. peak hour.



LEGEND: Peak hour flow in total persons - flow rate in persons/minute/foot of walkway width

For Definitions of Pedestrian Flows Please See Appendix C., page A-5.

Existing Pedestrian Conditions during P.M. Peak Hour (4:30-5:30)

North

Not to Scale

Source: EIP Corporation

Figure No. 26

The major impact on pedestrians due to the project would occur during the 2-year construction period, when sections of the sidewalk may have to be blocked for safety. Pedestrians would probably be confined to reduced sidewalk areas adjacent to the site. Pedestrian flows would become more congested at these restricted points. A pedestrian facilities plan (covering the construction period) would be required by the City's Bureau of Engineering prior to the issuance of a building permit.[5] Such a plan would include signing and pedestrian detours.

When complete, the project would not decrease effective sidewalk widths along Powell and California Streets adjacent to the site. The project's six peak hour trips would not result in a degradation in the "open" pedestrian flow characteristics on adjacent sidewalks and crosswalks.[6]

3. <u>Transit</u>

The project would generate about 25 daily transit trips including three p.m. peak hour transit trips. The effect on Muni load factors would not be measurable. The intersection of California and Powell Streets is a major transfer point for cable car passengers (the 59 and 60 lines also intersect on Mason Street). Project residents and/or visitors would compete with others to board the cable cars which are operating at or beyond their capacity.[7] Muni has a tentative schedule for temporary closure of the cable car lines for an overhaul of the system.[8] The system is generally planned to be shut-down for a 20-month period beginning in October 1982. During reconstruction of the cable car system, diesel buses would be substituted along non-operating cable car routes in the California and Powell Street area.

If illegal project-generated left-turns were to occur across the California Street tracks, cable car operation would be disrupted and/or delayed. Similarly, during truck loading movements on Powell Street, and during emergency auto access on Powell (or if emergency access only onto Powell were not enforced) cable car operation would be disrupted and/or delayed. On Powell such conflict would cause northbound cable cars to roll back to Pine Street and repeat the ascent.

4. Parking and Vehicle Access

A survey of on-street parking facilities within a two-block radius of the site was made on Thursday, January 29, 1981.[9] For the parking spaces counted, the following occupancy rates were noted:

2:00 p.m. - 4:00 p.m.	- 320 (100%) vehicles (with time limit on parking)
4:00 p.m. - 6:00 p.m.	- 190 (100%) vehicles (with no time limit on parking)
after 6:00 p.m.	- 320 (100%) vehicles (with no time limit on parking)

It was noted that some illegal parking occurred during the survey period (about ten percent of the parked vehicles were observed to be double parked or parked overtime).

The project would provide 30 self-park parking spaces (including two handicap spaces and three compact car spaces), two bicycle spaces, and one truck loading space. All of the parking facilities would meet the requirement of City Planning Code Article 1.5 (see Project Description, page 20). The Code would not require a loading space for this project.

Vehicle access to and from the project would be restricted by the cable car barriers on California Street. These barriers would allow right-turn only ingress and egress from California Street. Illegal left-turns could occur across the two concrete barrier curbs of the cable car tracks by vehicles traveling west on California to the site. Vehicles traveling south on Powell could illegally turn left at California to access the site.

Right-turn-only ingress and egress at the project driveway would result in some extra driving by residents and visitors. Most residents and frequent visitors would, however, be expected to adjust their routes for the most convenient access to/from the site.

Taxi and automobile pick-ups and deliveries would occur in the arrival court area of the project's ground floor. Because this area could not accommodate vehicle turning, it is probable that exiting vehicles would back onto California Street. This backing maneuver could interfere with through traffic on California Street.

Parking would be provided on three levels. The lower parking levels (B and C) would have access to the upper level (A) via an automobile elevator. Each of the lower levels would have an emergency exit onto Powell Street to be used by autos only if the elevator became inoperable.

The freight loading/trash pick-up space, at the lowest level (C), would have direct driveway access on/off Powell Street. Due to the narrow traffic lanes on Powell Street, trucks would encroach onto the cable car tracks while maneuvering in/out of this space. Based upon trip generation research[3] the project would, when completed, generate an average of about one truck visit per day. The impact from truck activity would be most pronounced if it were to occur during either the a.m. or p.m. peak periods of traffic flow. Although truck activity would be minimal, trucks could further disrupt traffic if the drivers were unaware of the loading area on Powell Street, as trucks could attempt to make deliveries at the project's California Street driveway. Deliveries at this point would probably result in traffic disruption on California.

During construction, equipment and material deliveries could result in vehicles encroaching into the adjacent streets. The activities would be particularly disruptive along Powell Street which has only one northbound travel lane adjacent to the site. The maximum truck activity would occur during site excavation. During this period, about seven to ten trucks would visit the site daily.[10] Due to the narrow width of Powell Street, construction truck activity could encroach into the cable car track area, disrupting the northbound Powell Street cable cars. If a cable car was disrupted traveling uphill, it would have to roll back to Pine Street before starting up the hill again.[11]

The disruption from project construction would be intensified if major construction components (such as excavation and concrete placement) were to coincide with the proposed cable car reconstruction. The cable car work will involve street grading and track reconstruction on both California and Powell Streets adjacent to the site.[12] Construction activity on the project could also conflict with the cable car work, since project construction could start during cable car system reconstruction scheduled to begin in October 1982.[10].

The project would not include spaces for on-site guest parking. Visitors and/or guests would have to seek off-site parking. This would be of particular impact in the event of a

party or other function at one or more of the condominium units. The result would be an increased demand for on-street parking, which is already at 100% occupancy, and an increased demand for off-street parking, in the garages in the project area. The off-street garages in the area currently have about 250 vacant spaces during daytime and evening hours[13] and these spaces would be available to accommodate the project's visitors and guests. Traffic congestion would increase from motorists seeking parking spaces. During major conventions and/or events at nearby facilities, the off-street parking would probably be saturated by visitors to the area. As an alternative, the limited project parking could cause guests to travel via taxi.

A second parking-related impact would be the loss of the existing 17 spaces at the project site. Vehicles which currently use the existing parking lot would seek other on- and off-street parking in the project area. Assuming these vehicles would use existing off-street facilities, the parking occupancy in these facilities would increase one to two percent (current occupancy is about 75%).

During the construction period, parking would be required for construction personnel. About 50 to 70 workers would be employed at the site for up to 24 months.[14] Due to the shortage of on- and off-street parking spaces in the vicinity of the project site, these workers would have a difficult time finding parking spaces, increasing the demand for parking in the area. Some may elect to use alternative transportation means to travel to the site (see Mitigation Section IV.A.1, page 92).

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[1]Caltrans District 4, Thirteenth Progress Report on Trip Ends Generation, June 1981, page 81.

[2]Estimate by George W. Nickelson, Traffic Engineer for EIP Corporation.

[3]Caltrans, District 4, Thirteenth Progress Report on Trip Ends Generations, June 1981.

[4]The analysis was conducted by George W. Nickelson, Traffic Engineer, and was based upon the following source: Institute of Transportation Engineers, Transportation and Traffic Engineering Handbook, 1976, pg. 354.

[5]Roy Wong, Engineering Associate, Bureau of Engineering, Department of Public Works, telephone conversation, April 12, 1982.

[6]At its meeting of March 18, 1982, the Joint Streets and Transportation & Fire, Safety & Police Committee considered an Ordinance narrowing the sidewalk width on the south side of California Street adjacent to the site (File 34-82-1). The sidewalk would be narrowed from 15 to 12 feet. A corresponding decrease in the "effective" sidewalk width (the actual width less street trees, signs, etc. available for pedestrian flow) would increase the pedestrian flow rates but conditions would remain "open."

[7]Existing load factors range from 0.65-0.75 (all seats occupied) during winter months to 1.5-1.6 (all seats occupied plus 30-40 standees) during the peak tourist season.

[8]Susan Chelone, Transit Planner, Muni, San Francisco, telephone conversation, November 2, 1981.

[9]Counts conducted by D. K. Goodrich, Traffic Engineer, Monday, January 29, 1979 (see footnote 3, page 41).

[10]Telephone conversation wth Gene A. Pollard, Perini Corporation, December 2, 1981, 2,000 cubic yards (cu. yd.) excavational/10-15 cu. yd. per truck/20 working days = seven to ten trucks daily.

[11]Peter Straus, Muni Planning Department, telephone conversation, March 27, 1982. A specific schedule for the cable car system reconstruction is not established for the California/Powell location.

[12]Wilbur Smith and Associates, Cable Car Safety and Operations Study, 1981, pages 32-35 and 44-45.

[13]Field review by George Nickelson, Traffic Engineer, on November 10, 1981 (see footnote 3, page 41).

[14]Gene A. Pollard, letter to Christopher Croft, Vice President, Clement Chen and Associates, from Perini Corp., December 18, 1980.

C. CLIMATE AND AIR QUALITY

1. Wind, Sun and Shade

Wind tunnel modeling tests were conducted for the proposed project to determine project effects on wind and human comfort near the project site (see Appendix D, page A-6). Tests were conducted for the two prevailing wind directions, northwest and west. Wind tunnel results are expressed in terms of a reference windspeed (see Appendix D, page A-8). Because windspeed varies from day-to-day and during the day, a described increase in wind (i.e., 23%) cannot be converted to a wind speed but must be considered as an amplification factor. Under northwest wind conditions the project would increase wind speed ratios by five to ten percent near the sidewalk edge at the west side of the California and Powell intersection; the windspeed ratio would remain within the moderately high range for the northwest corner and within the high range at the southwest corner. Windspeed ratios on the east side of the Powell/California Street intersection would decrease with the decrease ranging from 2 to 12%. This would be a small change and the wind in this location would remain "high". The project would divert wind south down Powell Street, raising windspeed ratios along the east sidewalk by 23% from "moderately small" to "moderately high"; the effect of the project would extend to mid-block, about 20 feet south of the project site where the increased wind would decelerate to normal conditions. Windspeed ratio decreases would occur along the sidewalk on the south side of California Street, with reductions ranging from 3 to 31%. Winds along the sidewalk on the north side of California Street would be unaffected. The rear yard/plaza of the project would have moderately low winds, while the entry plaza would have low winds.

For westerly winds the project would increase windspeed ratios on the west side of Powell Street by zero to three percent. The southeast corner of the Powell/California intersection would have a windspeed ration reduced by 15%. South of the site along Powell Street, the direction of the wind would be reversed and the windspeed ration would increase 20% from low to moderate levels. Winds along the sidewalk on the southside of California would not be affected by the project; on the north side decreases of 9-12% (low and moderately low to low) would occur, extending to the California/Joice Street interesection. The rear yard/plaza and the entry plaza would have low windspeed ratios.

Because of its height above the ground, the project's rooftop garden would be windy for both the northwest and west wind direction. Wind protection would be necessary to ensure usability.

The proposed project would increase the frequency of uncomfortably windy conditions along Powell Street south of California; and decrease the frequency of uncomfortably windy conditions near the Powell/California intersection and along Powell Street adjacent the project site. The cable car waiting areas at the Powell/California intersection would have lower winds and a lowered frequency of discomfort due to winds. The rear yard/plaza of the project would be sheltered from prevailing winds and would be usable a large portion of the time.

Sun-shade patterns at 10:00 a.m., 1:00 p.m. and 4:00 p.m. on the first day of each season were prepared for conditions with and without the project (see Figures 5-13, Appendix D, pages A-17 to A 24a). These times were chosen to include the time of greatest tourist activity and represent the worst case.

At 10:00 a.m. during the summer, the project's shadow would extend across Powell Street to the Stanford Court Hotel, shading the first floor along Powell Street near California. In the spring and fall, project shadow would extend across the California/Powell intersection towards the northwest. In winter, the project's shadow would extend down Powell Street to the north.

At 1:00 p.m. during the summer, the project would cast new shadow on pedestrian areas north across California Street. In the spring and fall, a similar effect would occur, but the area of new shade would be larger. In winter, the project's shadow would extend across California Street and partially down Miles Court (extending a few feet up the south walls of the two buildings on either side).

At 4:00 p.m. during the summer, project shadow would be cast toward the east across the rooftops of neighboring buildings and would not affect pedestrian areas. In the spring and fall, the project would add to the existing shade along the south side of California Street. In winter, the entire area near the site is presently shaded; the project would not add any new area of shade.

2. Air Quality

Construction activities would generate pollutants in the vicinity of the project. Trucks and equipment would all release exhausts in the area of neighboring buildings during construction hours. Earth-moving, grading and site excavation would generate dust and suspended particulates for approximately two to three months of the two-year construction period.

Direct atmospheric emissions from the project would be from the combustion of natural gas for space and water heating and cooking. Natural gas is a relatively clean-burning fuel and no visible plumes would occur. Exhaust gases would be emitted from each unit to the side of the building (see Section I.C., Project Description, page 20) and would be expected to be diluted to concentrations below the ambient air quality standards before reaching ground level.

The project would act as an indirect source of pollutants, e.g., by attracting automobile traffic. On the local scale, carbon monoxide (CO) is the most important pollutant emitted by automobiles. As CO levels tend to be proportional to traffic volumes, increases in CO would be on the same order as traffic increases. At the point of maximum impact (Powell Street), project-related automobiles would increase exhaust emission CO levels over existing conditions by less than seven percent. CO levels with or without the project would remain below State and Federal standards.

The project's regional air quality impact would be due to an increase in regional Vehicle Miles Traveled (VMT) associated with the project. Based on an estimated 60 new auto trips per day and average trip length of ten miles, regional VMT increase would be 600 per day.[1] This additional VMT and resulting emissions would necessarily reduce regional air quality by an unmeasureable amount.

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[1]The majority of the auto trips generated by the proposed project would be for business and recreational purposes within San Francisco; such trips would be expected to average at most five miles in length. This figure has been used in the analysis to represent a worst case project-generated vehicle miles traveled.

D. NOISE

Potential noise impacts associated with the proposed project would occur in four areas: the impact of existing noise levels on the project residents; the impact on adjacent development of increased traffic noise levels generated by project traffic; the impact on adjacent development of mechanical equipment noise associated with the use of the site; and construction noise impacts.

1. Impact of Existing Noise Levels on the Proposed Use of the Site

The existing background noise level for the site area has been estimated at 69 dBA (see page 42). The L_{dn} at the seventh floor level is expected to be about 67 dBA with a maximum single-event noise level (i.e. cable cars and bells) of up to 75 dBA. The L_{dn} at the 16th floor level would be about 65 dBA with maximum single-event noise levels at 69 dBA.

The proposed building would be equipped with double glazed windows (thermal windows) with approximately 1/4 inch between panes, and would rely on open windows for ventilation.[1] For residential land uses where the exterior L_{dn} is 69 dBA, the Transportation Noise Element of the Comprehensive Plan of the City and County of San Francisco states that new construction or development should be undertaken only after detailed analysis of the noise reduction requirements is made and needed noise insulation features (such as the type and size of window glazing) are included in the building's design. Title 25 of the California Administrative Code requires that for any multi-family development located in an area where the exterior L_{dn} exceeds 60 dBA, a report be prepared detailing how noise levels inside the building would be controlled to 45 L_{dn}.

Neither the standards specified in Title 25 of the California Administrative Code regarding maximum indoor noise levels of 45 L_{dn} nor the maximum single-event criterion of 50 dBA would be met indoors with the project windows open, and it would be likely that indoor activities such as conversation and television watching would be interfered with. The STC[2] rating of standard thermal windows ranges from 24 to 31 depending upon the thickness of the glazing and the thickness of the air space. Ordinary windows typically have STC ratings of from 24 to 28. A 31 STC window would be about the minimum required to meet the Title 25 standard with the windows closed.

Meeting the minimum standards of the State of California would not necessarily insure that there would be no sleep disturbance in the proposed condominiums. John W. Swing, a Senior Noise Control Engineer of the State Office of Noise Control in the California State Department of Health has suggested that to minimize sleep disturbance, maximum noise levels in sleeping areas not exceed 50 dBA.[3] A detailed analysis of the window gasket system, the percentage of the walls that would be windows, and the anticipated effect of room furnishings must be completed in compliance with Title 25 regulations to assure that the required noise reduction would be achieved.

The project sponsor would have the required analysis and report prepared, and would include the appropriate design features, to insure compliance with the Master Plan and Title 25.

2. Traffic Noise Impacts of the Proposed Project

Estimates of the project-generated traffic indicate that approximately 140 additional vehicle trips per day would occur. These additional trips would increase noise levels in the area by less than one dBA. This would not cause any noticeable increase in noise levels along adjacent streets as an increase of up to three dBA in environmental noise is not generally perceptible.

3. Noise Impacts of Mechanical Equipment on Adjacent Areas

The elevator drive mechanism and hot water boiler for the building would be located in a penthouse on the building roof. Noise generated inside the penthouse would not be audible over the general traffic noise in the area.

4. Impact of Construction Noise

Noise impacts caused by specific construction activities, primarily during site preparation would vary depending on the following:

- the duration of the particular construction activity
- the type(s) of equipment used
- the noise emission of a particular item of equipment during its "noisy" operation
- the mobility of the equipment (e.g., the noise source may be a stationary air compressor or a self-propelled backhoe)
- the distances between the noise source and the receptors

- the propagation characteristics of the path between the noise source and receptor (e.g., shielding by a barrier would result in a reduced noise level at the receptor).

The nearest noise sensitive uses to the project site are the residences on the south boundary of the site, the Stanford Court Hotel across Powell Street, the sidewalks adjacent to the site, and the University Club across California Street. The Stanford Court Hotel is approximately 75 feet from the border of the site and the apartments on the south are contiguous with the border of the site, as are the adjacent sidewalks. The noisiest construction activities would be pavement breaking (about 6,100 square feet of asphalt concrete paving would need to be broken up and removed from the site; this would require approximately one day[4]) and rock drilling if drilled caisson foundation footings would be required[5] (which would require approximately two to three weeks). During pavement breaking, noise levels of up to 88 dBA at a distance of 50 feet in all directions would be generated. If rock drills were used, maximum noise levels of up to 95 dBA at 50 feet in all directions would be generated. The project sponsor has agreed that an eight to ten foot construction fence would be erected around the project site (see Section IV.C., Mitigation, page 94).

Maximum noise levels in the Stanford Court would be from 59 dBA to 66 dBA in those rooms that would have line-of-sight to the construction operation; for rooms that were shielded by the construction fence, noise levels five to ten dBA lower would be expected. At a level of 59-66 dBA, the noise of the equipment would stand out above background traffic noise and could interfere with sleep in the rooms along Powell Street. Maximum noise levels of 95-100 dBA could be expected just outside the residential building to the south of site. Inside that building, maximum noise levels would be from 63-70 dBA depending upon the amount of noise reduction provided by the building facade. This effect would be approximately 12 dBA higher than the estimated present maximum noise levels inside the apartment building and could be expected to distract occupants and be annoying during times the equipment would be operating. If the occupants of the building are day sleepers, sleep interference could occur. On the sidewalk next to the site, the fence would limit construction noise to 80 to 85 dBA.

After foundation work, construction noise would be considerably less. As the building would entail some poured-in-place concrete work, concrete pumping would most likely be required. Concrete pumpers represent the next most significant noise source after those

discussed above. Concrete pumpers generate noise levels of about 85 dBA at 50 feet (equivalent to a diesel truck). It is expected by the project sponsor that concrete pumpers would be located along California Street adjacent to the project site. Because of the location of this equipment along California Street, noise effects on the Stanford Court building, or the residences to the south of site would be less than existing traffice noise levels in the area. Noise levels at the exterior of the University Club would be 80-85 dBA during concrete pumping. Interior noise levels would be 55-60 dBA with windows shut, a noise level which could annoy occupants; with window open the noise levels would be 65-70 dBA which could interfere with conversations as well as annoy and distract occupants of the building.

Construction activities in San Francisco are regulated by Ordinance 274-72, Section 2907, "Regulation of Noise." The ordinance requires that all powered construction equipment, except impact tools and equipment, emit not more than 80 dBA measured at 100 feet. Impact tools and equipment, including pavement breakers and jackhammers must have both intake and exhaust muffled to the satisfaction of the Director of Public Works. The ordinance further requires a special permit for construction after 8:00 p.m. and before 7:00 a.m. The ordinance is enforced by complaint to the City Building Inspection Department.

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[1] Clement Chen, Clement Chen and Associates, telephone conversation, May 10, 1979.

[2] The STC is a single number rating describing the sound transmission loss characteristics of building components, including doors, windows, floor/ceilings, etc. It is a measure of the sound insulating qualities of building components.

[3] Noise Control Engineering, Vol. II, No. 3, November - December 1978.

[4] Letter form Jean A. Pollard of the Perini Corporation to Mr. Christopher D. Croft of Clement Chen Associates, December 18, 1980.

[5] The foundation system may be either spread footings or drilled caissons.

E. VISUAL QUALITY AND URBAN DESIGN

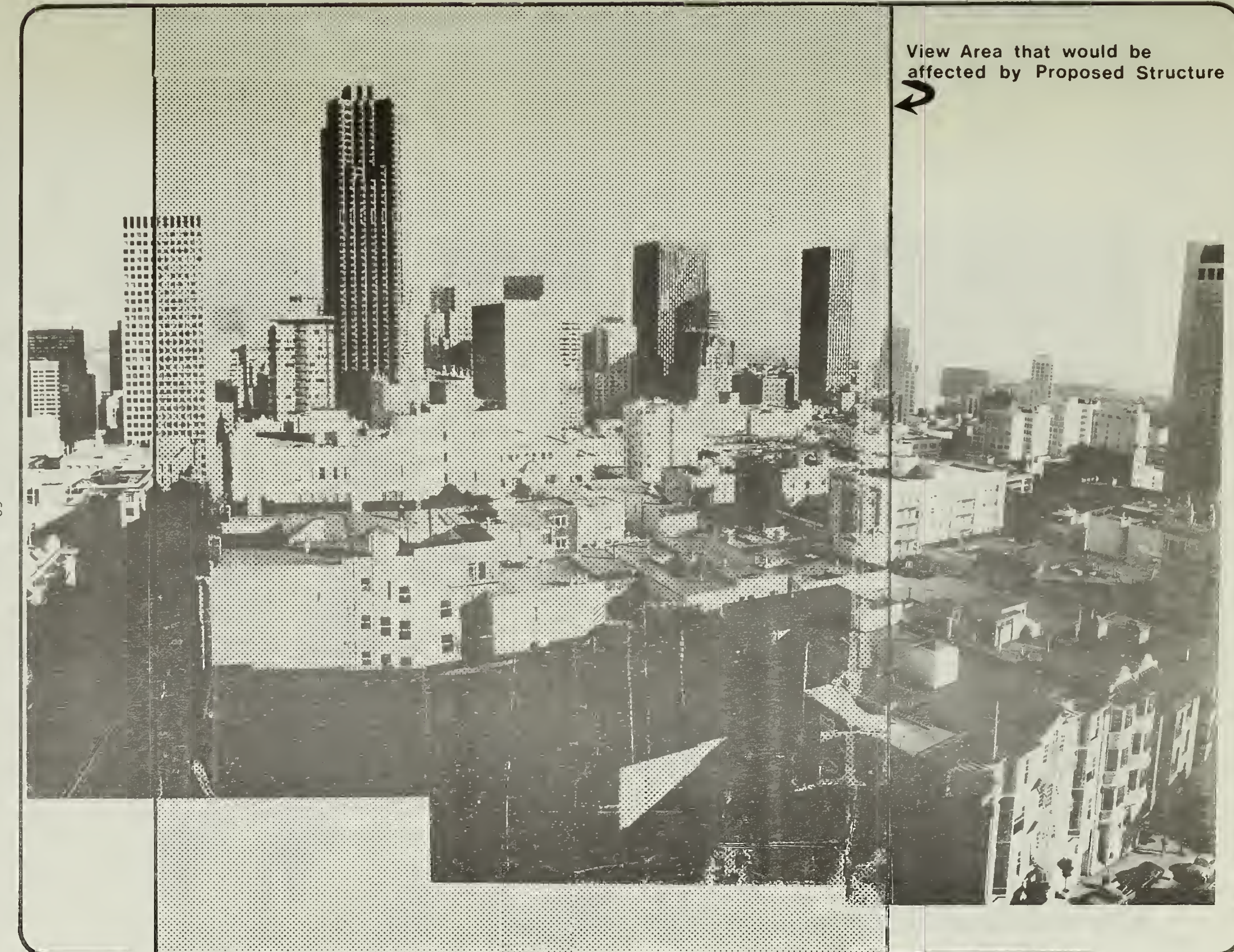
The proposed project structure would be 16 stories, or 160 feet tall (see Section I.C., Project Characteristics and Scheduling, page 6). A mechanical penthouse would rise 16 feet above the roofline (see Figures 4-9, pages 10-16). Wide-ranging new views would be available from upper floors of the building to major portions of San Francisco, the Bay,

Marin County and the East Bay from windows on all four sides of the building. Views from the lower floors would be of adjacent urban development. Views to the north, east and south would be relatively unrestricted due to the lower building profiles surrounding the project site on the lower slopes of Nob Hill. Views to the west would be restricted by the nine-story Stanford Court Hotel, the 15-story Mark Hopkins Hotel, the seven-story Fairmont Hotel situated to the west, on Nob Hill above the project site, and by the topography of the hill itself.[1]

A number of policies contained in the Urban Design Plan,[2] an element of the San Francisco Comprehensive Plan, relate to the project area and the proposed building. The Urban Design Plan is meant to serve as a guide to new development, to insure that the physical environment is not abruptly or severely disrupted and that harmony is preserved between old and new construction. Relevant policies include the following:

> City Pattern Policy 1: "Recognize and protect major views in the city, with particular attention to those of open space and water" (page 10).
>
> City Pattern Policy 2: "Recognize, protect and reinforce the existing street pattern, especially as it is related to topography" (page 10).
>
> Conservation Policy 7: "Recognize and protect outstanding and unique areas that contribute in an extraordinary degree to San Francisco's visual form and character" (page 25).

The project would not conform to City Pattern Policy 1. Any structure on the project site two stories or more in height would obstruct views from the surrounding area in varying degree. The project would eliminate views eastward of the Financial District from the central portion to the north end of the Powell Street side of the Stanford Court Hotel due to the height and 93-foot length of the proposed structure (see Figure 27, page 69). Views south from the four-story University Club located immediately north of the site across California Street would also be obstructed. Some views southeast from the California Street side of the Fairmont Hotel would be obstructed. Views from the Fairmont Tower and elevator on the exterior of the tower facing California Street would encompass the new structure to the southeast, but it would not obstruct major portions of view area toward the downtown. Views west from lower elevations on California Street east of the



View East From Eighth Floor of Stanford Court Hotel

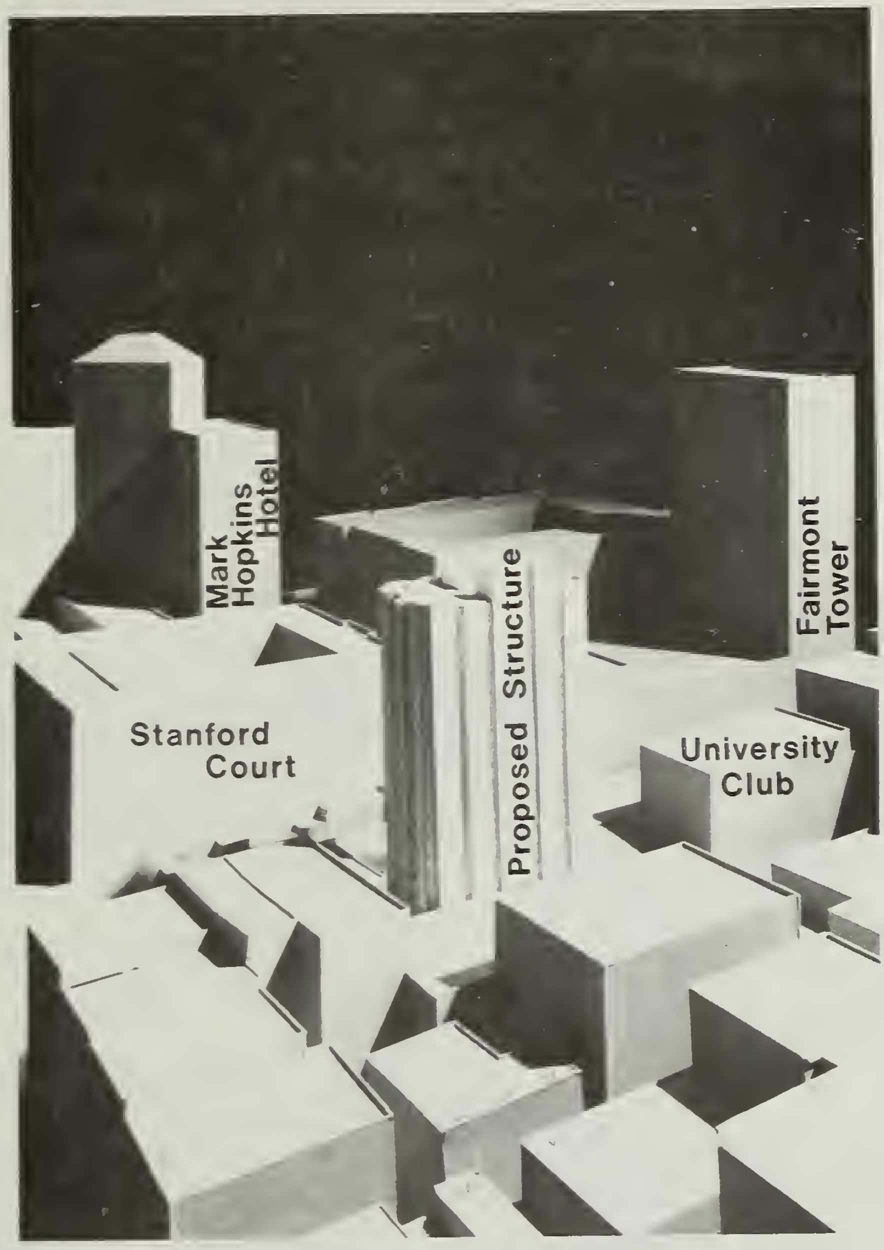
Figure No. 27

project site, and views north from lower elevations on Powell Street south of the project site would encompass a higher skyline building profile due to the project, which would block views to the Stanford Court and University Club, respectively.

The project would partially conform to City Pattern Policy 2. The proposed project would visually reinforce the edge of the intersection of California and Powell Streets and emphasize (define) the existing grid street pattern. There would be a loss of open space as there is currently no structure on the project site and a sense of enclosure would be increased. Street-level sight lines would be more strongly directed down Nob Hill along the existing street corridors. However, while the project area includes buildings of mixed age and architectural treatment, there is a relative consistency of building scale transition, wherein taller buildings are situated toward the top of the hill while lower structures progress down the hill toward its base (see Figures 28-31, pages 71-74). The general effect is to emphasize the hill's ascending form. The project site is located below the summit of Nob Hill; the proposed 16-story building would rise above the structures located immediately adjacent on all sides. Therefore, the project would not reinforce the pattern of building height progressively stepping down from the top of Nob Hill toward the base of the hill.

The proposed project would relate to Conservation Policy 7 to the extent that it would respond to city pattern policies 1 and 2 discussed above. The project would contribute to strengthening the form of the street network of Nob Hill by visually defining the southeast portion of the intersection of California and Powell Streets.

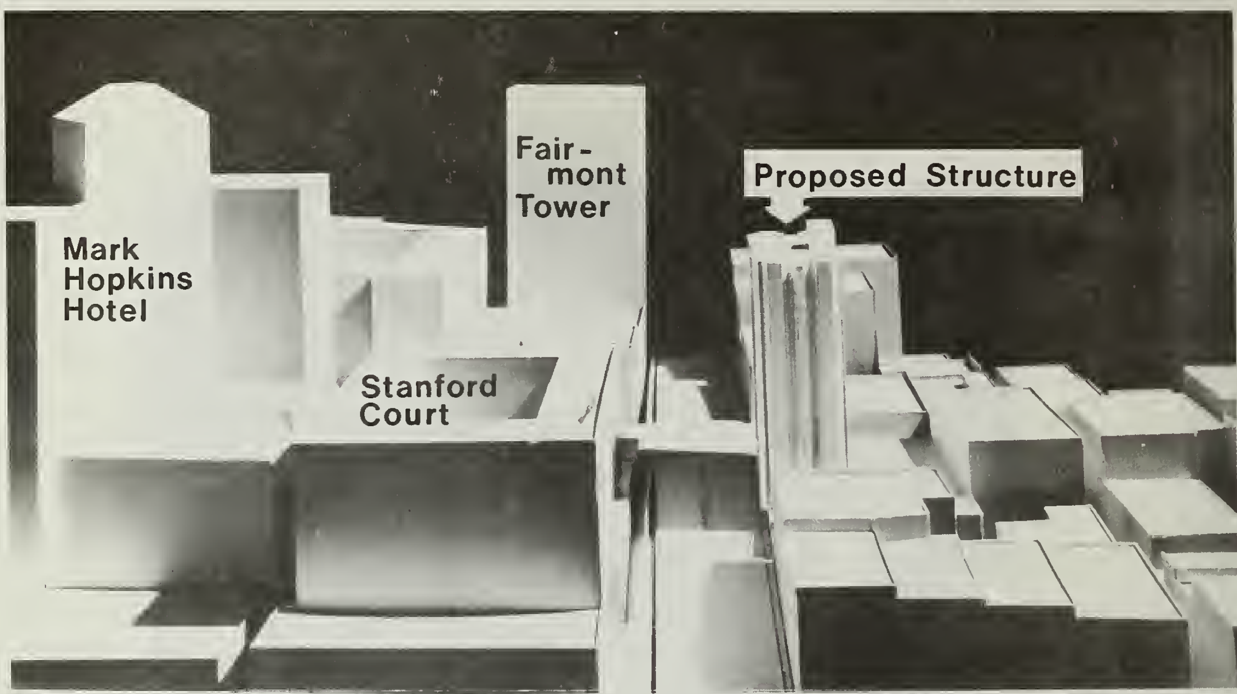
From the standpoint of cumulative visual impacts, there are two other projects in the Nob Hill area near the site proposed for construction (Figure 30, page 73). These include the 750 California Street condominium project (81.207E), to contain 73 apartments in 16 stories rising 160 feet on the downslope of California Street between Stockton and Grant Streets, 1½ blocks east of the project site, and the 1300 Sacramento Street condominium project (81.500 EC) to be located on the southeast corner of the intersection of Sacramento and Jones Streets containing 24 condominiums units in 14½ stories rising 160 feet (3 blocks west of the project site). Although not in immediate proximity to one another, cumulatively, the above two projects in conjunction with the project would obstruct views from adjacent or nearby buildings and intensify the scale of development in the Nob Hill area. The 750 California Street building, and the proposed project, would



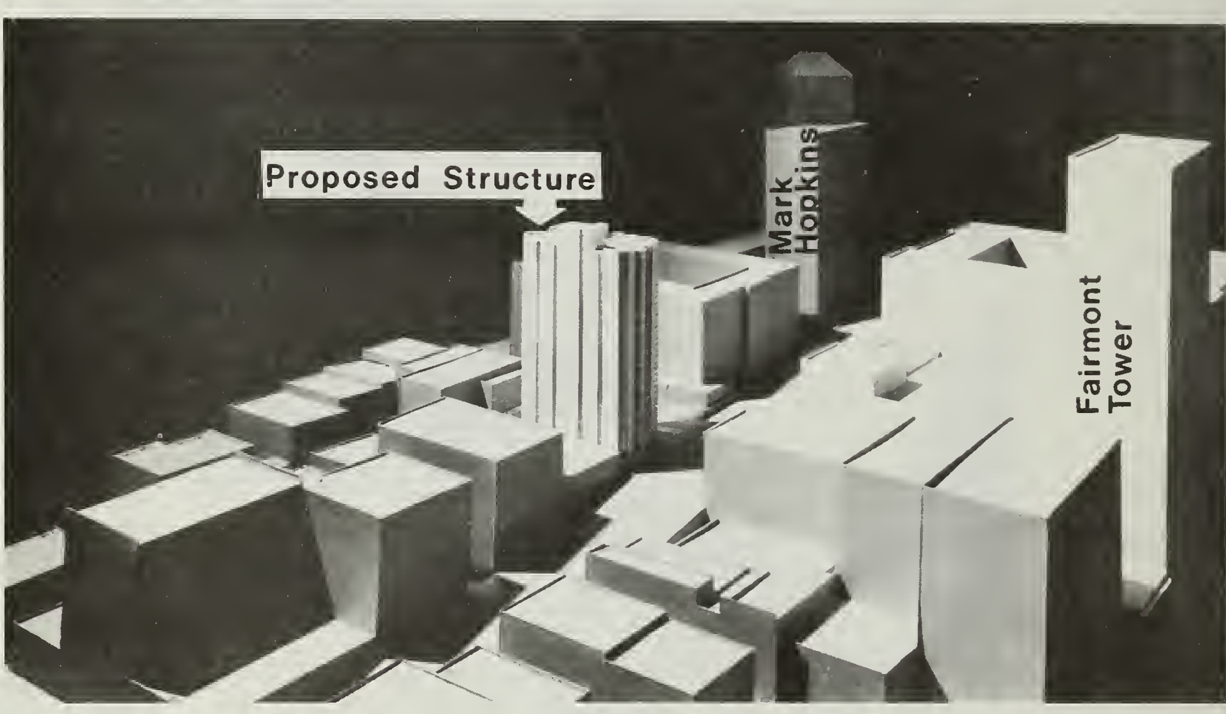
View to Northwest

Project Area Model

Figure No. 28



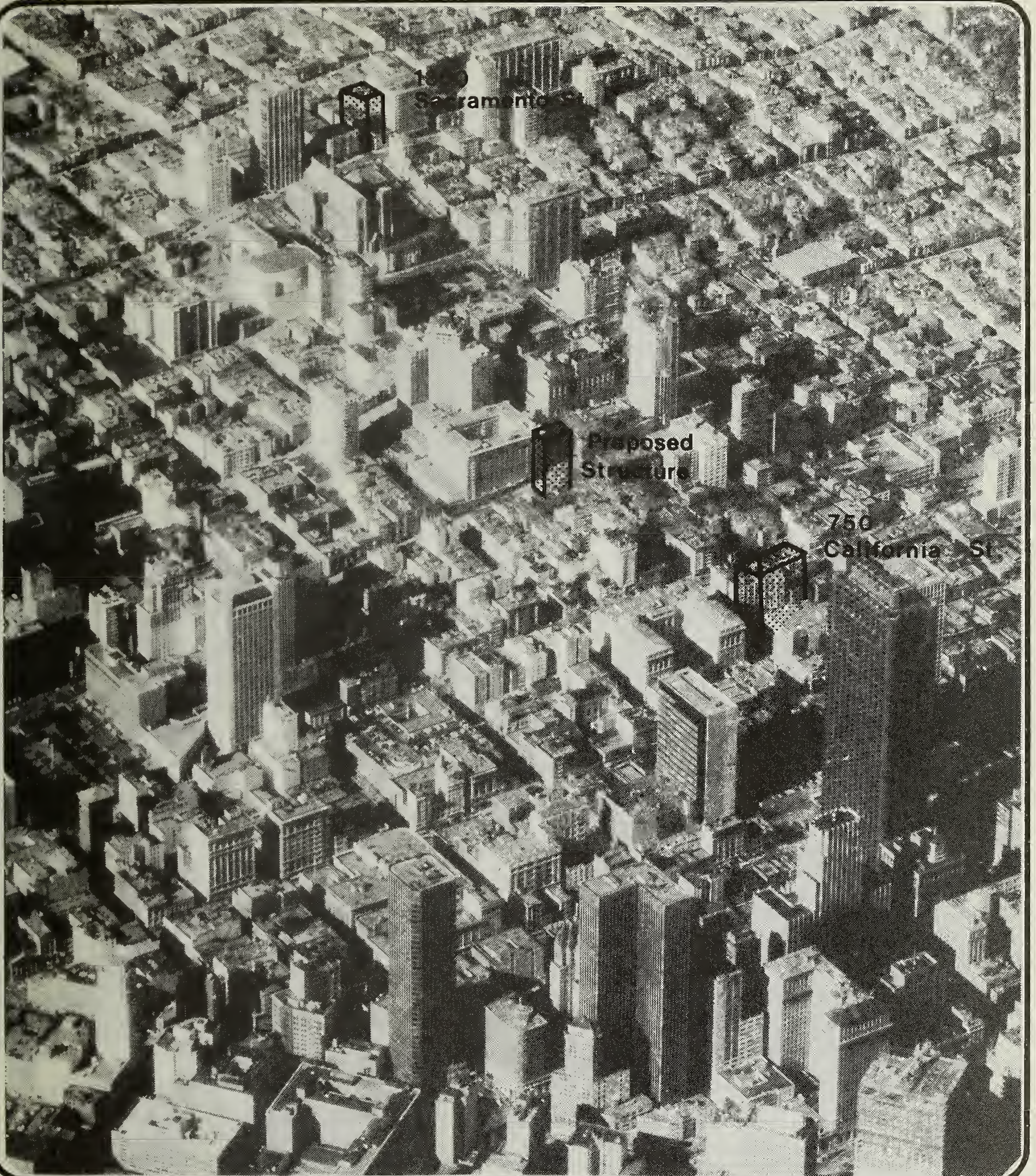
View North



View to Southwest

Project Area Model

Figure No. 29



Aerial View of Project Area

(View is to the northwest. See Figure 23 for names of adjacent structures.)

Figure No. 30

Aerial View of Project Area
(View is to the northwest)

Figure No.31

represent a departure from Principle 2A of Objective 1 of the Urban Design Plan (page 4) which recommends the placing of "tall, slender buildings at the tops of hills and low buildings on the slopes and in valleys (to) accentuate the form of the hills." The 750 California Street project, according to the Draft Initial Study, ". . . would be 75 to 85 feet higher than adjoining buildings . . . ."

The proposed project and the 750 California Street project would conflict with Principle 2B of Objective 3 of the Urban Design Plan (page 33) which states that "Tall buildings on slopes of hills severely restrict views from above" and "influence the quality of views from street space," as previously discussed and Principle 4 of Objective 3 which states that "The relationship between areas of low, fine-scaled buildings can be made more pleasing if the transition in building height and mass between such areas is gradual." The proposed project and the 750 California Street project would generally not provide the gradual transition in building height referred to above. Neither would the 1300 Sacramento Street building, thus cumulative visual impacts on Nob Hill would result.

> Conservation Policy 6: "Respect the character of older development nearby in the design of new buildings," (page 25).

> Major New Development Policy 1: "Promote harmony in the visual relationships and transitions between new and older buildings," (page 36).

> Major New Development Policy 2: "Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance," (page 36).

> Major New Development Policy 6: "Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction," (page 38).

The proposed project would add a new architectural design element to the existing mixture of architectural styles to be seen on Nob Hill, and although the building's external form and appearance would be unlike that of other structures fronting the intersection of California and Powell Streets, the project would respond to Major New Development Policies 1 and 2 and Conservation Policy 6.

Residential design guidelines are outlined in the Residence Element of the San Francisco Comprehensive Plan.[3] Policy 5, promoting the development of well-designed housing and "...living environment (that) complements the design character of the surrounding neighborhood..." (page 12), calls for relating the design character of new housing to the general design character of surrounding buildings, relating the shape of new buidings to the form of adjacent structures, encourages articulation of the building faces through the use of bay windows and detailing, and the enclosure of parking.

The proposed structure would be constructed of reinforced concrete. The exterior of the building would consist of precast concrete panels and glazing. The concrete spandrels[4] would be light beige in color,[5] generally conforming with the colors of other buildings in the area. Dark grey glass windows would be set in dark brown aluminum frames projecting from the building's exterior on the north, south and west sides (Figure 4, page 10), but would not greatly contrast to clear glazing of other buildings in the area. Windows on the east side of the building would be set inward from the building face (Figure 3, page 9). The projecting windows would be similar to the bay windows found on residential structures throughout the City. The projecting windows would provide a greater play of light and shadow on the face of the building than would flush-mounted windows, would serve to modify the basically rectangular shape of the building and, to a degree, would visually reduce the building's mass.

The projecting spandrels and windows would be visually emphasized by round, vertical concrete columns located between the projections and rising the full height of the building (Figures 4-7, pages 10-14). Round, vertical concrete columns would also be located on the building's east side. However, the visual appearance of the east face of the structure would not reflect the details of glass and spandrel configuration of the other building faces, and there would be less glass surface area on the building's east face. In lieu of projecting windows on the buildings east face, balconies would be provided on each floor which would provide visual interest and shadow patterns. The windows would be set back from the edge of the building, located behind the balconies because the proposed structure would abut the adjoining east property line and windows placed along the face of the structure at the property line would require approval of the adjacent property owner(s).[6] Approval of the adjacent property owner to install windows in the building's east face as proposed would not be required.

The proposed project would generally conform to Major New Development Policy 6. The building's bulk, defined by its height, length and width, could appear compatible with the Stanford Court, Fairmont and Mark Hopkins Hotels because of the greater length and width of these structures (Figures 28 and 29, pages 71 and 72).

> Neighborhood Environment Policy 13: "Improve pedestrian areas by providing human scale and interest," (page 57).

The proposed project would respond to this policy.

Pedestrian activity at the intersection of California and Powell Streets centers on use of the cable cars and access of the adjacent hotels and buildings (see Section II.B., Setting, Transportation, page 39). Pedestrian access to the proposed building would be through an entry located at the corner of California and Powell Streets. There would be three steps upward to the pedestrian plaza and lobby comprising the entry to the building. At the pedestrian level, views to interior portions of the building would occur at the entry adjacent to the intersection of California/Powell Streets. Planters would be placed between the building columns along Powell Street (where there is currently a concrete retaining wall) to provide visual relief along the facade of building walls constructed to prevent views inward to the parking levels (Figure 4, page 10). Outdoor spaces for the use of building occupants would be provided in a 1,500 square-foot outdoor terrace (rear yard) over the parking garage at the second level (Figure 10, page 17), and a balcony for each unit on the east side of the building of about 155 square feet each. The second level terrace would be for the use of residents occupying the unit adjacent the terrace. The terrace would consist of a paved area surrounded by plant materials and would be viewed from above by occupants in units on the south side of the building.

Removal of the existing retaining walls and surface parking, and visual access to the building's interior at the street-level entry would be expected to improve the appearance of the project site over existing conditions. Further pedestrian area visual improvements would be made utilizing the planters noted above and street trees.

Currently, there are three eucalyptus trees varying in height from 8 to 20 feet adjacent the site along Powell Street which would need to be removed during project construction.[7] At the completion of construction, six street trees about ten to 12 feet tall would be

installed in the sidewalk adjacent the project site along Powell Street and three street trees would be installed in the sidewalk along California Street. Section 143 of the San Francisco Planning Code requires that street trees be provided in any R District (one tree for each 20 feet of street frontage) subject to approval by the Department of Public Works for the construction of new buildings. Street furnishings such as benches or a newsstand are not proposed by the project sponsor.

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[1]The number of floors of a building visible from street level varies due to the sloping form of Nob Hill and location of the observer with respect to the buildings. For example, a structure with a level roofline rises fewer floors above the high portion of a hill on which the structure is situated, than downhill portions of the hill on which the structure is situated.

[2]San Francisco Department of City Planning, Urban Design Plan, adopted by Resolution 6745 of the San Francisco City Planning Commission, August 26, 1971.

[3]San Francisco Department of City Planning, adopted by Resolution 7417 of the San Francisco City Planning Commission, December 11, 1975.

[4]Spandrel: In a multi-story building, a panel-like area functioning as a vertical element between the top of a window on one level and the sill (base) of a window in the story above.

[5]Clement Chen, Clement Chen and Associates, personal communication, October 9, 1980.

[6]City and County of San Francisco, Bureau of Building Inspection, Department of Public Works, Plan Checker Mr. A. Corenevsky, telephone communication, January 30, 1981; City and County of San Francisco, Bureau of Building Inspection, Department of Public Works, Building Code, Table 5A, Footnote 2, Article 5, pages 119-120.

[7]The existing eucalyptus trees are in poor condition and would not be suitable for salvage due to costs and the uncertainty of survival.

F. GEOLOGY AND SEISMICITY

If an earthquake of a maximum estimated probable magnitude of 8.3 on the Richter scale were to occur along the San Andreas Fault, as did the 1906 earthquake, the site would experience strong groundshaking. The City of San Francisco has been divided into different zones of estimated groundshaking intensity based on such factors as distance to fault and subsurface and surface geological conditions.[1] Zones range from A, very strong, to E, weak (Appendix G, pages A-34). The project site is located in Zone D in which groundshaking would be strong, meaning that there would be a general but not universal fall of brick chimneys, and cracks in masonry and brick work. The project site is in

Zone D primarily because it is underlain by bedrock, which experiences less shaking in an earthquake than unconsolidated materials such as mud, fill, and soil.

The structure would be designed to meet the seismic design standards of the San Francisco Building Code to minimize damage in a moderate earthquake (magnitude 5.0 to 6.0), and prevent collapse under the maximum probable earthquake. Glass could still present a hazard by potential cracking and falling.

The geology of the site would not be directly impacted by the proposed project; geologic conditions would determine the type of foundation needed and type of construction methods to be employed for constructing the proposed building (see Section IV. E, Mitigation, page 94). As stated in the site engineering report, "there will be no effects to the general vicinity with regard to soils or geology . . . The adjacent streets and private property will not be significantly affected with respect to slippage or sliding potentials by the construction of the subject structure since the proposed method of excavation will allow negligible movements."[2]

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[1] URS/John A. Blume, "San Francisco Seismic Safety Investigation," prepared for the Department of City Planning, City of San Francisco, June 1974.

[2] Lee and Praszker, Consulting Civil Engineers, Proposed Apartment Building, SE Corner of Powell and California Streets, San Francisco, California, Job L-569, August 14, 1973.

G. ENERGY

Pacific Gas and Electric Company (PG&E), provides electricity and natural gas to the project area. PG&E has electrical and natural gas supply lines in the immediate area of the proposed project site of sufficient capacity to handle the anticipated demands of the proposed project.[1] The site is currently used a parking lot with negligible energy consumption.

1. Construction

Based on estimated project construction costs, (see Section I.C. Project Description, page 27) the proposed project would be expected to consume approximately 51 billion BTU during construction,[2,3] the equivalent of approximately 9,400 barrels of crude oil.

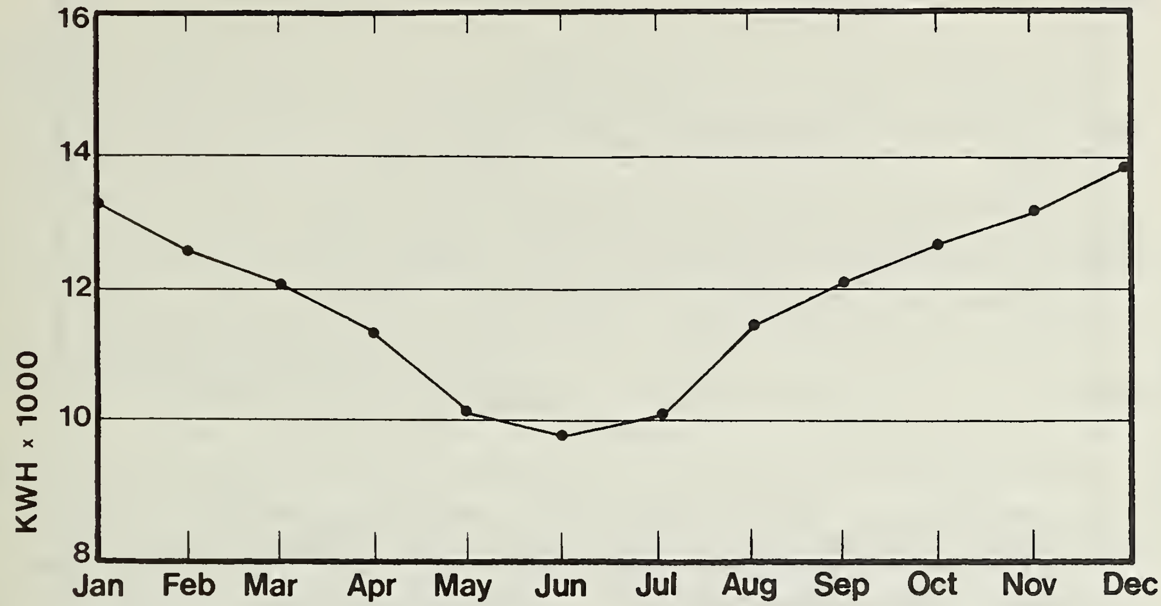
2. Operation[4]

The proposed project would use natural gas for water heating, cooking and space heating; electricity would be used for lighting, refrigeration and appliances, and no air conditioning would be provided except in elevator lobby areas and as an option for the residential units. The anticipated connected load of the project would be 580 kilowatts.[5] The annual consumption of electricity would total about 145,000 kilowatt hours (kwh).[6] The average monthly electrical consumption would be 12,000 kwh, or 0.13 kwh per square foot of interior floor space.[7] Daily and annual electrical demand curves for the project are shown in Figure 32, page 81.

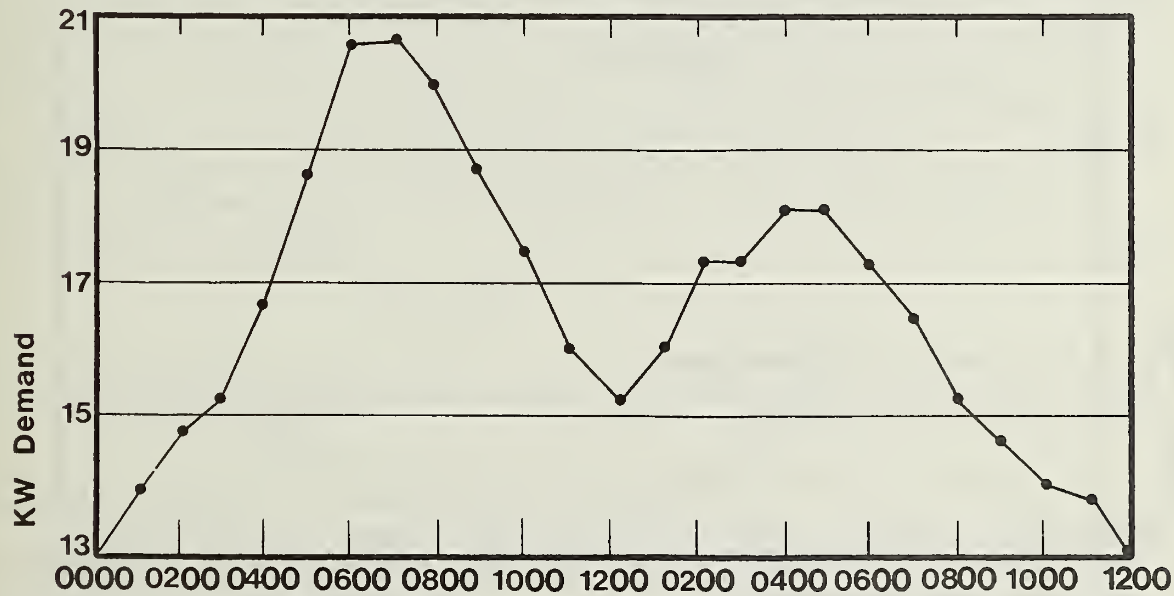
Space cooling for the residential units is not included in the project design because it is not required by San Francisco's relatively cool climate. Nevertheless, it is possible that some project residents would install air conditioning in their units. The quantity of energy consumed by such equipment would depend upon the cooling capacity of the units, the number installed, the hours of operation and the thermostat set points used by the residents. As a result, precise estimates of the projected energy consumption are not possible; however, a rough estimate can be made to provide an indication of the amount of energy which might be used. If one third of the residents purchase 1.5 ton air conditioning units and operate them at full load 200 hours per year, about 3,500 kwh of electricity would be used primarily during the months of August and September. About 15 kw would be added to the connected load of the project.

The project's average natural gas consumption would be approximately 190 BTU per square foot of interior floor space per day, for a total of 6.4 billion BTU per year.[7] Daily and annual load distribution curves are shown in Figure 33, page 82. These curves assume a nighttime thermostat setting of 65°F; the daily curves are for January and September, which are usually the coldest and warmest months, respectively, in San Francisco. The estimated peak demand for gas would be approximately 1.9 million BTU (1,900 cubic feet) per hour.[7]

As a new residential structure, the proposed project would be required to comply with Title 24, Part 6, Article 6 of the California Administrative Code, which is designed to reduce the energy consumption of new residential buildings in California.



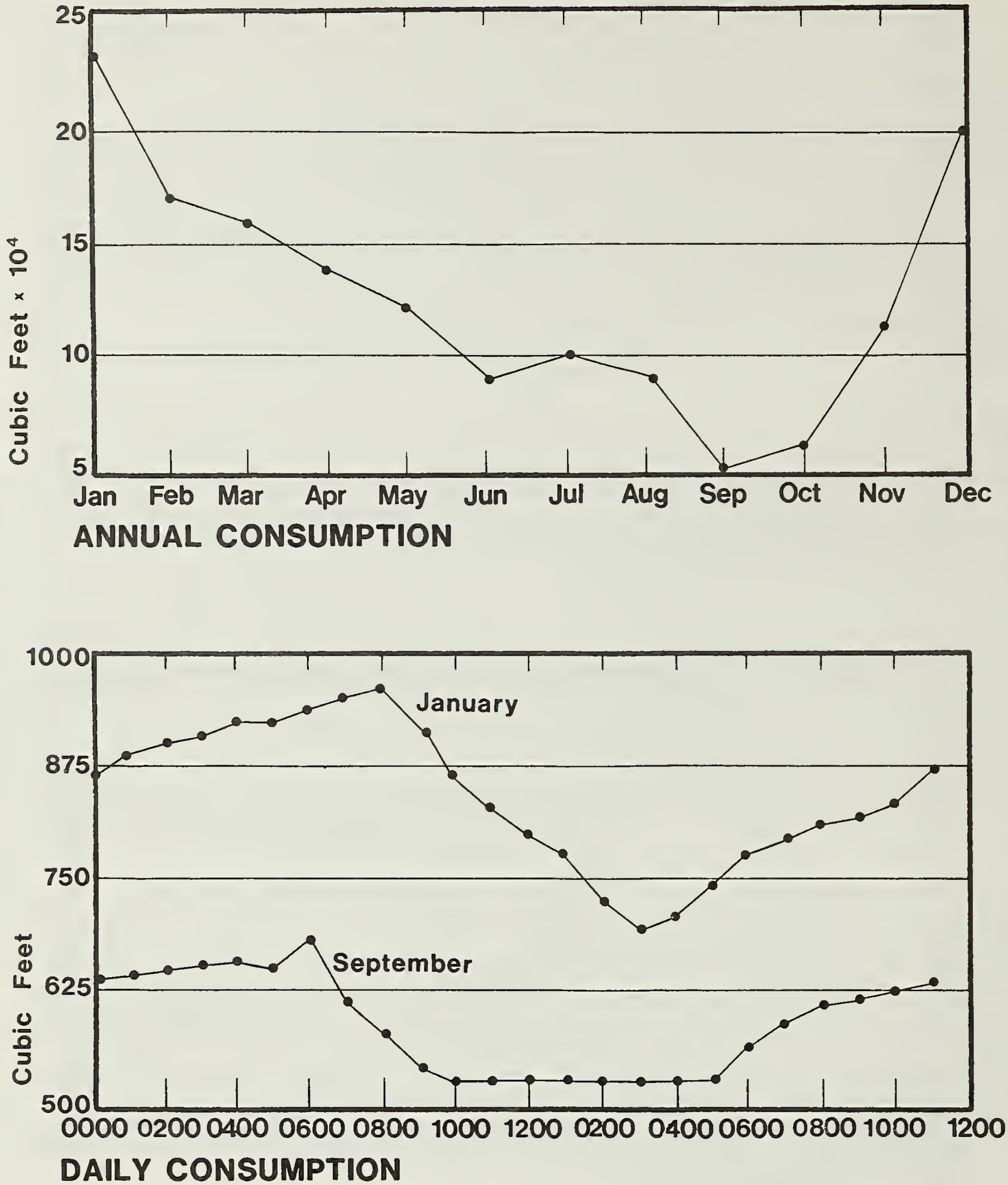
ANNUAL CONSUMPTION



DAILY CONSUMPTION

Estimated Electrical Consumption

Figure No. 32



Estimated Gas Consumption

Figure No.33

The following design features have been incorporated into the design of the proposed project by the project sponsor, in compliance with Title 24 and were considered in the calculation of energy consumption[8] above: use of thermo-paned glass to reduce heat transfer through window; insulation of all exterior concrete walls; and utilization of individual unit metering. The inclusion of these design measures would lead to an eight percent reduction in the rate of heat loss through the building envelope, a 12% reduction in the annual heating energy use, and a three percent reduction in total annual energy use, compared with the absence of these measures.

It should be noted that the bulk of the structure's heat loss would be through the windows, even though they would be thermo-paned. Such windows lose heat at a rate three to six times faster than the walls of the building, which would be constructed of concrete, with insulation. Due to the increasing emphasis on energy conservation, window shades, and curtains with insulating qualities have become available; some of these approach fiberglass insulation in their ability to prevent heat loss. The project sponsor would encourage residents to install such shades or curtains in the dwelling units. In addition, the project sponsor is considering the use of an auxiliary solar hot water heating system.[9] Solar heating for the rooftop swimming pool portion of the heating load of the spa are also being considered. The decision whether or not to include these solar features would be made prior to the application for the building permit on the basis of a cost-beneift analysis performed by a reputable solar contractor using a methodology accepted by the California Energy Commission.

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[1] Jerry Tyson, District Marketing Manager, PG&E, San Francisco Division, telephone conversation, March 19, 1982.

[2] BTU - British Thermal Unit: the quantity of heat required to raise the temperature of one pound of water 1°F.

[3] Tetra Technology Inc., Energy Use in the Contract Construction Industry, Appendix A, "Study Methodology," and Appendix B, Etc." NTIS No. PB-245-423 and -424, Arlington, Virginia, Tetra Technology, Inc., 1975.

[4] Energy consumption calculations are based on the assumption that building construction would meet the requirements of Title 24 of the California Administrative Code regarding energy consumption of new residential buildings and thus satisfy the prescriptive standards contained therein.

[5]Based on information obtained from Bill Hancock, Energy Utilization Engineer, PG&E, telephone conversation, February 16, 1979.

[6]One kwh = 1,000 watts consumed for a period of 1 hour.

[7]See Appendix H, page A-36, Energy Demand Calculation Methodology.

[8]Edward Tanovitz, Clement Chen and Associates, letter to Environmental Impact Planning Corporation, April 23, 1979; telephone communication, May 16 1979.

[9]Clement Chen, Clement Chen and Associates, personal communication, February 9, 1981.

H. COMMUNITY SERVICES

1. Police

The project site is patrolled by police cars along California and Powell Streets. No foot patrols regularly pass the site.[1] The area is served by Central Station, 776 Vallejo Street. The project is within reporting area 348 which is bounded by Sacramento, Mason, Kearny and Bush Streets. A total of 791 crimes were reported in the reporting area for 1981, 94 of which were residential burglaries. The reporting area ranked ninth out of the 26 reporting areas in the Central District. (The average number of reported crimes for the District was 989 in 1980.) Average emergency response time to the site is 2½ minutes.[2]

The Powell/California intersection was the scene of ten reported traffic accidents in the four years from 1978 to 1981, inclusive.[3]

Development of the site with luxury residential units would increase potential for crime on the property. The proposed project would have 24-hour security personnel. Other security arrangements would consist of electronic locks on interior stair doors and TV surveillance of ground floor exits and entrances. The proposed project would not be expected to place an additional demand for City police services in terms of personnel or equipment.[2]

2. Fire

The nearest firm alarm box to the proposed project is at the intersection of Powell and California Streets.[4] Three stations could respond to potential incidents at the proposed project site: Station #2 (1340 Powell Street), Station #13 (530 Sansome Street) and Station #41 (1325 Leavenworth Street).

A six-inch underground fire service line would be provided from a specific project connection to the street water mains, pursuant to City Fire Department regulations.[5,6] Fire service lines are required to provide water outlets on each floor of the building.

Peak flow rate in fire service lines is estimated at 750 gallons per minute. Annual consumption of water on this service would be limited to testing of the pipe system, unless there were a fire in the building. Ample water supplies exist and the water distribution system on California and Powell Streets is adequate to supply the building's fire protection water needs.[6] Self-contained fire and life-safety systems, consisting of sprinklers and alarms, would be provided as required by the San Francisco Building Code.

The structure would be considered a highrise as its height exceeds fire department ladder capabilities of 75 feet. The San Francisco Fire Department requires that a representative of all high-rise (commercial and residential) buildings take a nine-week, 27-hour course taught by the Bureau of Fire Prevention. This class is designed to train building representatives to be prepared to evacuate the building during various situations ranging from bomb scares to earthquakes. The City's Emergency Response Plan provides for a "command post" to be established at the Fire Department's Central Station near City Hall. Here a line of communications between utilities and services would be set up to keep agencies advised as to the location and severity of problems.

The San Francisco Fire Department anticipates no special fire-fighting problems for the proposed project other than those associated with high-rise buildings.[6]

Fires in newer structures are generally confined to the building, rather than spreading from one building to another. Life safety code requirements for fire protection help reduce the cumulative impact of newer developments on the Fire Department. However, more than one 2 or 3 alarm fires in an area would put a strain on the Department's ability to maintain fire protection throughout the City.

3. <u>Water</u>

A six-inch water main beneath the west side of Powell Street and an eight-inch main under California Street, located 21 feet from the north property line serve the project area.

Water service for the proposed project would be required for domestic use. No cooling-tower operations would be required, as the building would not be centrally air conditioned although some condominiums would have air conditioning units.

Water consumption is expected to be 3,000 to 5,000 gallons per day.[7]

Ample water supplies currently exist and the water distribution system on California and Powell Streets is adequate to supply the proposed project's water needs without an adverse cumulative effect on the services to other customers on the system.[8] The City's Water Department requires that water be recycled wherever possible. The use of low flow toilets, shower heads, etc., is required by the Building Code.

4. Sewer Service

Two major sewer lines serve the site: a 15-inch line runs under California Street and a 12-inch line is located under Powell Street.[9] Both lines carry wastewater flows to the North Point Water Pollution Control Plan where sewage receives primary treatment. The sludge is then transported to the Southwest Water Pollution Control Plant for secondary treatment before it is discharged into the bay.

Potential sewer loads from the project would be from domestic water and rainfall. The project would not increase the amount of impervious surface area on the project site.

Approximately 3,000 to 5,000 gallons per day, with a peak flow rate of 0.06 cubic feet per second, of sewage would be generated by the proposed project. Annual generation is estimated at 1,800,000 gallons per year.

The San Francisco Department of Public Works considers the sewer system in the vicinity of the project to be adequate to handle the wastewater generated by the proposed building.[9]

5. Solid Waste

Solid waste in the project area is disposed of by the Golden Gate Disposal Company. Solid waste removal takes place as often as necessary or requested, and waste is brought to a transfer station west of Candlestick Park before its disposal at the Mountain View dump.

This dump has less than a three-year capacity. Future landfill sites under consideration are in Altamont, Vacaville, Oxnard Mountain and Mountain View.[10]

The proposed project would generate less than one ton per week of solid waste.[11] A one- or two-cubic yard container would be necesary to hold this waste. The City requires that garbage be removed six times a week in apartment buildings containing 40 or more rooms.

No recycling program exists for the project area, however, should the residents of the project wish to recycle solid waste, an independent recycler could be contracted to collect the sorted cans, glass, and newspaper.[12]

The city's two garbage collection companies, Golden Gate Disposal and Sunset Scavenger, propose to build a waste energy plant at the Tunnel Avenue Transfer station. Ferrous materials would be mechanically sorted from the refuse and the remaining trash would be burned. The steam created by the trash burning would be converted to electricity. This project, first presented to the City in 1974, is still under consideration. The residents of the City of Brisbane will be able to vote for or against the construction and operation of the waste energy facility in the November 1982 election.[12]

6. Medical Services

It is anticipated that project residents would have their own physicians, and would not place additional demand on City-provided medical services. St. Francis Hospital would be able to accommodate emergency calls originating from the proposed condominium project.[13]

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[1] Mike O'Connor, Police Services Aide, San Francisco Police Department, telephone conversation, May 22, 1979.

[2] Paul Libert, Sergeant, Crime Analysis, San Francisco Police Department, telephone conversation, April 8, 1982.

[3] Bill Horner, Traffic Analysis, San Francisco Police Department, telephone conversation, March 10, 1982, (records do not indicate the direction of travel).

[4] Robert E. Rose, Chief, Division of Planning and Research, San Francisco Fire Department, telephone conversation, May 25, 1979.

[5]Robert Ritter, Consultant Engineer, telephone conversation, May 14, 1979.

[6]Ed Murphy, Chief, Division of Planning and Research, San Francisco Fire Department, telephone conversation, March 11, 1982.

[7]Based upon the water usage at Fontana East Apartments of 103 gpd/unit and the average single family dwelling consumption of 170 gpd/unit. Eugene Kelleher, General Manager and Chief Engineer, San Francisco Water Department, telephone conversation, March 11, 1982.

[8]Cy Wentworth, Estimator, San Francisco Water Department, telephone conversation, 11 March 1982.

[9]Nat Lee, Engineering Associate, Division of Sanitary Engineering, San Francisco Department of Public Works, telephone conversation, April 8, 1982.

[10]David Cohen, Special Projects, Chief Administrative Office, telephone conversation, November 20, 1981.

[11]California Solid Waste Management Board, Bullein No 2, "Solid Waste Generation Factors in California". Technical Information Series, July 8, 1974 (Urban Residential Refuse equals approximately 3 lbs. of solid waste per person per day)

[12]David Gavrich, Special Projects, Chief Administrative Office, telephone conversation, March 16, 1982.

[13]Francis Clemens, Emergency Room Supervisor, St. Francis Hospital, oral communication, September 17, 1981.

I. ECONOMICS

1. Economic Activity and Employment

The existing parking lot would be discontinued at a loss of about $27,600 per year in gross receipts (1982 dollars) to the lot operators.

Permanent new employment generated by the project is expected to be seven persons. A resident caretaker would be employed; three people would be employed in security jobs and in the parking valet service (if implemented); an estimated three additional jobs for maintenance and janitorial services would be created. In addition, live-in housekeeper jobs may be expected for some units.

Some of the project employees could move to San Francisco. These employees could probably afford monthly housing costs in the range of $325 to $500 per month.[1] Current median rental housing costs in the City are estimated at $40 for a one-bedroom apartment[2] so that a portion of the project employees could afford housing in the City.

Construction employment would be anticipated to be 65 persons for 24 months, for a total of 130 person-years.[3] The project would directly generate some further employment related to design, interior finishing and decoration of units, real estate and financing.

2. Public Revenue

The project would generate an estimated total of $479,000 - $482,000 (in 1981-1982 dollars) in direct property tax, sales tax, utility users tax and payroll tax revenues annually, beginning at full occupancy. See Table 6, below and Appendix I, page A-38). Until the State Legislature enacts permanent legislation regarding future distribution of property taxes, it is not known how much of this total revenue would go to the City and County of San Francisco. If it were distributed as it was in 1981-1982 (this is unlikely, but used for purposes of comparison), the City and County of San Francisco would receive about $364,400 annually.[4] The annual total would then be 37 times greater than 1980-1981 (pre-project) revenues of $9,900.

If housing prices continue to rise, the property tax would not rise in line because of Proposition 13's provision that assessed value increase only 2% annually, unless sold.

TABLE 6

ESTIMATED ANNUAL DIRECT PUBLIC REVENUES GENERATED BY PROJECT[1]

(1983-1984, in 1982 dollars rounded to nearest $1,000)

	Total	City and County[2]
Property Tax[3]	460,000	364,000
Utility Users Tax	5,000	5,000
Payroll Tax	1,000	1,000
Sales Tax	14,000-17,000	14,000-17,000
TOTAL	480,000-483,000	384,000-387,000

[1] Does not include indirect, population-related revenues, such as sales taxes on goods purchased by new residents.

[2] Assumes share similar to 1981-1982, for comparison only. Property tax distribution to 1983-1984 unknown.

[3] Based on market value of 38.6 million and 1.19% maximum tax on full value (including bond repayment).

Source: Appendix I, (see pages A-38 to A-40).

If all the project's anticipated 96 residents were to move from outside the City, they would generate additional public revenues through local sources of revenue fees, fares, fines, licenses and sewer and water charges.[5] Indirectly, several State and Federal sources of revenue to San Francisco that are based on formulas which are partially related to population would also increase: these include the state gas tax, motor vehicle-in-lieu taxes, and federal revenue sharing, but the increase would be negligible based on this total project.

3. Public Costs and Net Revenue

The proposed project would be expected to add to the demand for municipal services provided by the City and County, particularly for water usage and wastewater treatment, although the cost for these services would be offset by the user fees and utility taxes (Appendix I, page A-38). In addition, because the building would be of new construction and would employ its own security force (see Section III.H., pages 84 and 85), the cost for fire protection and police services would be expected to be lower than average (undetermined) costs for existing residential buildings.

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[1] Assumes 30% of income spent on housing. See Appendix I, page A-40, for employee incomes.

[2] Mike Estrada, Department of City Planning, telephone conversation, December 17, 1981. Result of 1981 survey of rental advertisements in the San Francisco Examiner. Newspapers are not statistically valid sources because they are not representative of entire stocks of units. They can, however, provide a general indication of rents.

Two other sources of rental data exist, but have been deemed inadequate for the present study: 1) HUD develops costs for the Section 8 housing subsidy program. These estimates reflect SMSA data which have been indexed forward from the 1970 census, and benchmarked with the Annual Housing Survey, which is published with at least a year time-lag: 2) the Citizen's Housing Task Force has developed hypothetical rental levels based on multi-family construction cost. However, new units represent a very small segment of the San Francisco rental market.

[3] Clement Chen, Clement Chen and Associates, written communication, September 17, 1981.

[4] The remainder would go to the school district ($54,700), community college districts ($9,200), the Bay Area Air Quality Maintenance District ($1,800) and for BART Bonds ($28,900) and other bonds previously approved by the electorate, until all bonds are redeemed.

[5] It is not anticipated, however, that all of the 96 residents would relocate from homes outside San Francisco. This figure represents an upper limit. Possible new residents to the City that might occupy the housing of City based residents moving to the proposed project could be of a slightly lower income range and generate less revenue to the City, however, this assumption is speculative.

With direct annual municipal revenues of approximately $364,000 and additional indirect revenues, not quantified, the project would generate a net fiscal gain of $354,000 to the City and County, above present revenues from the site of $9,900. If costs of services continue to rise at the present rate of inflation and Proposition 13 continues to limit property tax increases, the project could generate a net fiscal loss in later years.

J. GROWTH INDUCEMENT

As a worst case, assuming all residents of the proposed building would come from areas outside San Francisco, the project could increase San Francisco's population by approximately 96 persons. To the extent that residents would be purchasing goods and services not already being purchased in San Francisco, the new residents would directly stimulate some commercial activity.

No additional public facilities or services must be provided to accommodate the project; therefore, no further indirect growth-stimulating effects in connection with the project are foreseen. There would, however, be an increase in purchasing power in the City due to new residents over the long term, and construction personnel over the short term construction period; this increase would generally be imperceptible to local merchants.

K. NEIGHBORHOOD CONCERNS

On February 18, 1977, a letter was received by the San Francisco Department of City Planning from the Stanford Court Hotel[1] regarding a condominium building proposed for construction at the project site (EE 73.165; see Section II.A., Project Site History, page 29). Principal concerns expressed included the potential obstruction of views to and from the Stanford Court, economic feasibility of the project, construction costs and the financial capability of interested persons to purchase the units. On June 4, 1979, the Stanford Court Hotel stated that its previously expressed concerns for a previous condominium project proposal had not abated and would appear to apply to the currently proposed project.[2] On July 30, 1979, the Department of City Planning received correspondence from the Stanford Court Hotel regarding this project. Concerns were expressed about traffic and circulation, urban design and visual quality.[3]

On January 15, 1981, an evening meeting concerning the proposed project was held in the Gold Room of the Stanford Court Hotel. The project sponsor presented the project to interested neighborhood groups, residents and property owners within a 300-foot radius of the project site who were previously notified about the meeting by mail. About 40 persons were in attendance. Specific concerns identified during the testimony included vehicular entrance locations to the project, accessibility for service and delivery vehicles, street traffic, transit, seismicity, wind conditions and floor plans.

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[1] James A. Nassikas, President and Managing Director, Stanford Court Hotel, to James Hirsch, Planner, February 11, 1977.

[2] James Nassikas, President and Managing Director, Stanford Court Hotel, telephone communication, June 4, 1979.

[3] William Nothman, Controller, Stanford Court Hotel, to Department of City Planning, July 30, 1979. See also letter of February 8, 1979 from William F. Wilkinson, Vice President and General Manager, Stanford Court Hotel.

IV. MITIGATION

A. TRANSPORTATION

1. Construction

The project sponsor would select a parking location adjacent to the downtown area for the use of project construction workers, and provide a shuttle service (vans or taxis) between the parking area and the project site.

Construction deliveries would be prohibited (in coordination with the general contractor) during the 7:30 a.m.-8:30 a.m. and 4:30 p.m.-5:30 p.m. peak periods and would be limited to the project's California Street frontage.

2. Operation

A loading space (not required by the Planning Code for this project) would be provided with access on Powell Street for garbage pickup and materials delivery. This space would be clearly designated and regular delivery vehicles would be notified of the space. Truck pickup and delivery would not be allowed during 7:30 a.m.-8:30 a.m. and 4:30 p.m.-5:30 p.m. peak hour periods. The loading area would be closed and locked during these times. Signs would be posted, regular delivery service would be notified, and project residents would be notified of these delivery restrictions. This would be expected to reduce loading/pedestrian, transit and auto conflicts which would be greater with on-street loading.

The project sponsor is considering use of valet parking for residents and guests. Valet parking would allow the parking of about 45 cars in the structure (15 more than the 30 spaces proposed) and provide flexibility in guest parking during social functions. The use of valet parking would be determined when the project nears completion of construction, and would be based on the desire of residents for such parking. If used, valet parking would be designed to avoid vehicle back-ups onto California Street. Valet attendants

would be instructed and directed not to park cars to cause back-ups onto California Street, and vehicles would not be allowed to be left unattended while waiting to be parked.

Vehicle access to the project would be on California Street and would include a 17-foot-wide driveway and automobile entry court. Access to the project on Powell Street would be for loading and for emergency auto exit only (if the automobile elevator breaks down). This would reduce traffic congestion and conflict on Powell Street which has a 17% grade adjacent to the site and is narrower than California Street.

B. CLIMATE AND AIR QUALITY

There are several types of mitigating measures for wind. The first would be project redesign changes to reduce winds near the project, such as different building orientations or changes in size or shape. Rotating the building 90 degrees would reduce wind impacts because the building would intercept less wind, but lot shape restricts this possibility. A smaller, more slender building design would also intercept less wind and have less effect on winds. The project sponsor has determined that a smaller building would not be economically practical on the site.

Shelter for pedestrians could be provided in small structures such as transit stop shelters adjacent to the site. Amenities such as kiosks for newspaper or flower vendors and telephone booths could also be provided. The project sponsor is not proposing such shelter or amenities as part of the project. The Planning Commission may require these measures as a condition of project approval.

Street trees and other vegetation could function as windbreaks. Six street trees (three more trees than are there now) would be provided along the Powell Street sidewalk to reduce but not eliminate street level winds affected by the project. Wind increases along California requiring mitigation would not be expected to occur based on wind studies for the project. Nonetheless, three street trees would be provided along the California Street sidewalk. Trees would be selected to meet City requirements and to provide effective windbreaks as quickly as possible.

Watering to control dust on the site during construction would be required of the construction contractor by the project sponsor. The San Francisco Building Code requires

that measures be taken to reduce dust generation, specifically, watering down demolition materials and soils. An effective watering program as proposed, providing complete coverage twice daily would reduce emissions by about 50%.

C. NOISE

A construction safety fence about eight to ten feet high, which would also serve as a noise barrier, would be constructed around the west and north boundaries of the site before foundation work would be begun. Such a noise barrier would reduce noise levels on the sidewalk up to 15 dBA, to 80-85 dBA. Heavy pedestrian use of the project site vicinity would make this reduction in construction-generated noise levels desirable. A wall high enough to shield the upper floors of adjacent buildings would not be feasible, as it would have to be 25 feet tall. An exception is the side wall of the building immediately to the south of the site; windows would be covered with plywood by the contractor to reduce interior noise levels after consent by the building owner.

D. VISUAL QUALITY AND URBAN DESIGN

To preserve all views from the Stanford Court Hotel and University Club, the proposed building would have to be no higher than two stories. The project sponsor feels that a structure containing fewer than 16 proposed floors would not be economically practical on the site.

The provision of bay windows on the east face of the building would provide a more uniform appearance to the structure when viewed from the east. This would require either extending the building over the adjoining property through purchasing air rights or placing the building back approximately seven feet within the side property line, in order that any projections not be closer than four feet to the adjacent property line. The project sponsor desires to provide balconies with windows set back in lieu of seeking approval of the adjacent property owner to provide windows along the property line wall. If the building were built out to the east property line and lacking an agreement with the adjoining property owner, the building's east facade would be a wall without windows. Costs for purchase of air rights have not been determined.

To enhance the pedestrian environment outside the building, sidewalk paving like that of the proposed paving in the building lobby and entry could be installed in sidewalk areas adjacent to the entry. The project sponsor is considering this measure and a decision to

reject or implement the measure will be made when detailed designs of the building's pedestrian entry and lobby are completed. The principal criteria would be whether the material selected would be safe for sidewalk use and be acceptable to the City.

E. GEOLOGY AND SEISMICITY

A preliminary soils report[1] has been prepared for the project site. A thorough geological investigation would be prepared by a California-licensed soils engineer, engineering geologist or geologist prior to construction of the proposed project. The engineering properties of the underlying material would be determined and appropriate construction methods recommended. The project sponsor would follow these recommendations.

F. COMMUNITY SERVICES

A pilot curb-side recycling program started in the Sunset District November 23, 1981. A recent evaluation of this program indicates that participation declined after the first month. It is anticipated that within several months, more advertising and a reduced rate garbage bill will encourage a more active recycling participation. Another experimental program will begin in late Spring 1982 at Park Merced to determine if apartment recycling is feasible.[2]

An evacuation and emergency response plan would be developed by project sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services, to insure coordination between the City's emergency planning activities and the project's plan and to provide for building occupants in the event of an emergency. The project's plan would be reviewed by the Office of Emergency Services and implemented by building management before issuance by the Department of Public Works of final building permits.

---

[1]Lee and Praszker, Consulting Civil Engineers, Proposed Apartment Building, SE Corner of Powell and California Streets, San Francisco, California, Job #L-569, August 14, 1973, on file at the Office of Environmental Review.

[2]David Gavrich, Special Projects, Chief Administrative Office, telephone conversation, March 16, 1982.

V. UNAVOIDABLE ADVERSE IMPACTS

A. TRANSPORTATION

1. Construction

The major project impact on pedestrians would occur during the two-year construction period, when sections of the sidewalk adjacent to the site on Powell and California Streets may be blocked for safety.

The construction process could result in conflicts between construction equipment, deliveries, etc. and traffic and transit (including cable car) operations on California and Powell Streets. (Transit impacts would be partially mitigated through an appropriate construction schedule and process.)

If planned cable car system reconstruction were to coincide with construction of the project, there would be expected to be proportionately greater traffic and transit disruption at the project intersection.

2. Operation

Residents of and visitors to the proposed project would compete with others to board congested cable cars which are operating at or beyond their capacity (i.e., load factors can be 1.5-1.6 during peak tourist season).

There could be an impact on existing off-site parking facilities due to project-related vehicles, as there could be a lack of space available for on-site guest parking when most residents would be present.

Possible illegal left turns for project access on California Street could conflict with auto traffic and disrupt cable car service on that street.

B. CLIMATE AND AIR QUALITY

The proposed building would generally increase the windspeed ratio along Powell Street south of California Street by approximately 23% from moderately low to moderately high.

Earth-moving, grading and site excavation would generate dust and suspended particulates during the initial stages of the two-year construction period.

New shadows would be cast by the project over adjacent street and pedestrian areas. The first floor on the north side of the Stanford Court Hotel would be shaded on summer mornings, but not at other times or seasons.

C. NOISE

During project operation the state standard of 45 L_{dn} (Title 25 of the California Administrative Code), would not be met indoors with the windows open, due to the ambient noise level at the site.

Maximum noise levels during construction would be about 59 dBA to 66 dBA inside rooms of the Stanford Court Hotel and University Club with line-of-sight to project construction. At this level, the noise of construction equipment would stand out above the background traffic noise and could interfere with sleep in the rooms along Powell Street.

Maximum noise levels of 95 to 100 dBA could be expected just outside the residential building to the south of the project site for about three months during construction. Inside the building, maximum noise levels would be about 63-70 dBA and could be expected to distract occupants and be annoying during the times rock drills and pavement breakers would be used.

D. VISUAL QUALITY AND URBAN DESIGN

Views eastward from portions of the Powell Street side of the Stanford Court Hotel would be obstructed because of the height and 93-foot frontage of the proposed structure along Powell Street. Views south from the four-story University Club, located immediately north of the project site, would be obstructed. Views toward the southeast from the California Street side of the Fairmont Hotel would be partially obstructed.

The building's 16-story height would appear large in comparison to the three- to nine-story structures surrounding the site.

E. ENERGY

The proposed project would use approximately 440 billion BTU during its assumed 50 year lifetime, or approximately 82,000 barrels of crude oil.

VI. ALTERNATIVES TO THE PROPOSED PROJECT

A. NO PROJECT

If the proposed project were not constructed, present use of the site as a parking lot would continue for an unspecified period of time. None of the impacts identified associated with the proposed project would occur. No housing would be provided.

Under the no-project alternative, the project site would remain underutilized in terms of development potential. The site would be held open for future options of the land for development (see Section VI.B., below). During deferment of development, existing zoning codes could be amended, affecting the ultimate build-out potential of the site, toward lesser or greater density. It cannot be exactly determined what effect inflation would have on future development proposals for the site under the no project alternative.

The project sponsor has rejected this alternative because of his desire to realize greater return on investment than that provided by the present use of the site as a parking lot.

B. ALTERNATIVE SITE USES

Other possible permitted site uses with existing RM-4 zoning include 1, 2, and 3-family dwellings, senior citizen housing and/or group housing (boarding house, rooming house). Other alternative uses, subject to Conditional Use approval, could include various community and institutional uses, such as hospitals, medical centers, elementary and secondary schools, post-secondary educational institutions, community clubhouses, neighborhood centers, private recreation areas, community garage, and hotels containing six or more guest rooms or suites.

1. Residential Use

The site could be developed for 1, 2, and 3-family dwellings of height and scale more like those of the existing apartments to the south and southeast of the site than the proposed project. Up to four 3-family dwellings could be built with frontages along Powell Street.

However, this would place the garage entrances also along Powell Street which could cause more conflicts with traffic than with the project as proposed. Pedestrian, energy and visual impacts would be less than those of the proposed project. Because of high land values in the Nob Hill area and because residential development at a density of one dwelling unit per 200 square feet of land is a principal permitted use, there would appear to be no economic incentive for use of the site for 1, 2, and 3-family dwellings.

As noted, other alternative residential uses could be group housing, such as a boarding house, and senior citizen housing. The site could accommodate an 87-bedroom boarding house[1] or 61 units for physically handicapped or senior citizens.[2] The rear yard requirement of the Planning Code would be the same as that for the proposed project, and it would be likely that either of these residential uses would be accommodated in a structure similar to that proposed, but with more, smaller units. Any structure over 40 feet in height would require conditional use approval (see Section I.D, Project Description, page 28). Visual and energy impacts would be similar to those of the proposed project. Housing on the site for the physically handicapped or senior citizens would generate less vehicle traffic than the project as proposed and require fewer parking spaces within the structure for building occupants (one space for every five dwelling units). Transit use would be expected to be greater.

2. <u>Public/Private Recreation/Educational Use</u>

Development of the site for a community clubhouse, public neighborhood center, or private recreational area are other alternative uses which would be of a less intensive nature than the proposed project. Visual and energy impacts would be less. Tax revenues accruing to the City would likely be less, although employment could be increased. An FAR of 4.8 to 1[3] would allow about 17,000 square feet of development, about four to five stories high, compared to the project's 93,433 gross square feet of area and 16 stories (as the FAR does not apply to residential use). A structure of this type would be similar to the scale of the existing apartments in the surrounding area.

If the site were to be developed for educational purposes, more people would enter and leave daily than with the proposed project. Traffic impacts would therefore be expected to be greater for this alternative use; furthermore, peak-hour trips would be concentrated inbound in the morning and outbound in the evening, corresponding to the prevailing commute pattern to the central City area. With other uses in this group, evening traffic could be greater.

Use of the site as a community garage for the storage of private passenger automobiles of residents in the vicinity would be similar to the existing use of the site. A garage structure consisting of several levels of parking would generate more traffic in the area than would a single level of surface parking as currently exists.

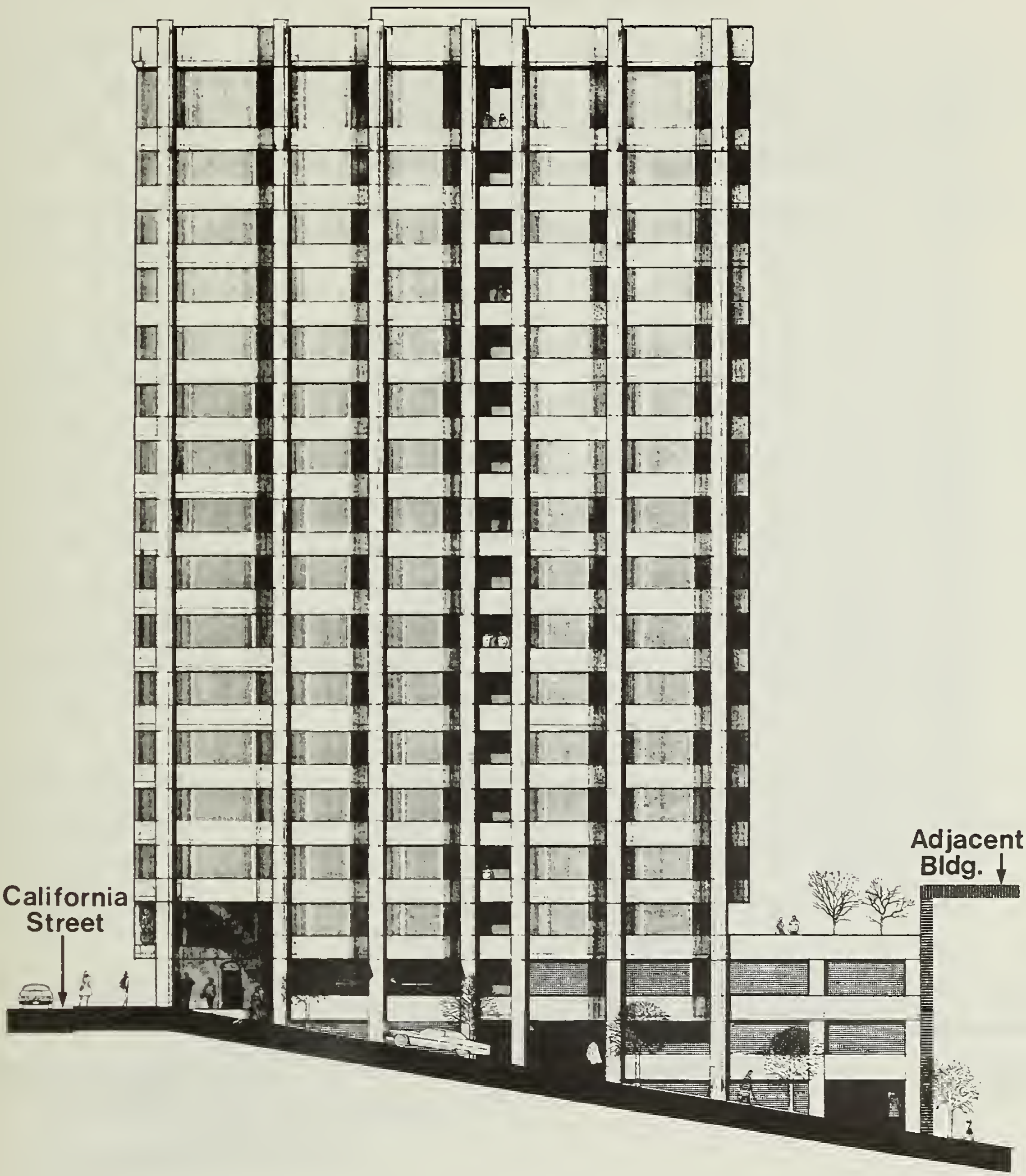
The project sponsor has rejected these alternatives because they would result in a lesser return on investment than the proposed project.

C. DESIGN ALTERNATIVES

Alternative designs of the proposed building would relate principally to changes in detail design treatment of the building's exterior; provision of vehicular access from Powell Street; alternative building configuration, either at the roof line or by a step down design; development on a larger site including a shorter building on this site; or an alternative design complying with all provisions of the Planning Code without application for a Conditional Use or Variance.

1. Design/Materials Alternative with Access from Powell Street

Changes in detail and design treatment of the building's exterior would not significantly alter the visual impacts of the structure as proposed (see Section III.D., Impacts, Visual Quality and Urban Design, page 44). For example, alternative building designs for a 16-story structure were prepared by the project sponsor, addressing exterior treatment, number of parking levels and vehicular access to the structure (Figures 34 and 35, pages 102 and 103). This alternative would have two parking levels in lieu of the three levels currently proposed, and automobile access from Powell Street instead of California as now proposed. This alternative would increase potential conflicts between cable cars and autos entering and exiting the building on Powell Street (see Section III.B.4., Impacts, Transportation, page 57). The three proposed parking levels would allow for greater vehicular maneuvering space within the structure than the two levels of this alternative. Exterior design treatments of this alternative were rejected in favor of the proposed design which more clearly defines the base, column and top of the structure. Alternative interior space arrangements were also studied for the condominium units. The selected design represents to the project sponsor a combination of design features that is most aesthetically appropriate and the arrangement of internal building spaces and use functions of greatest efficiency.

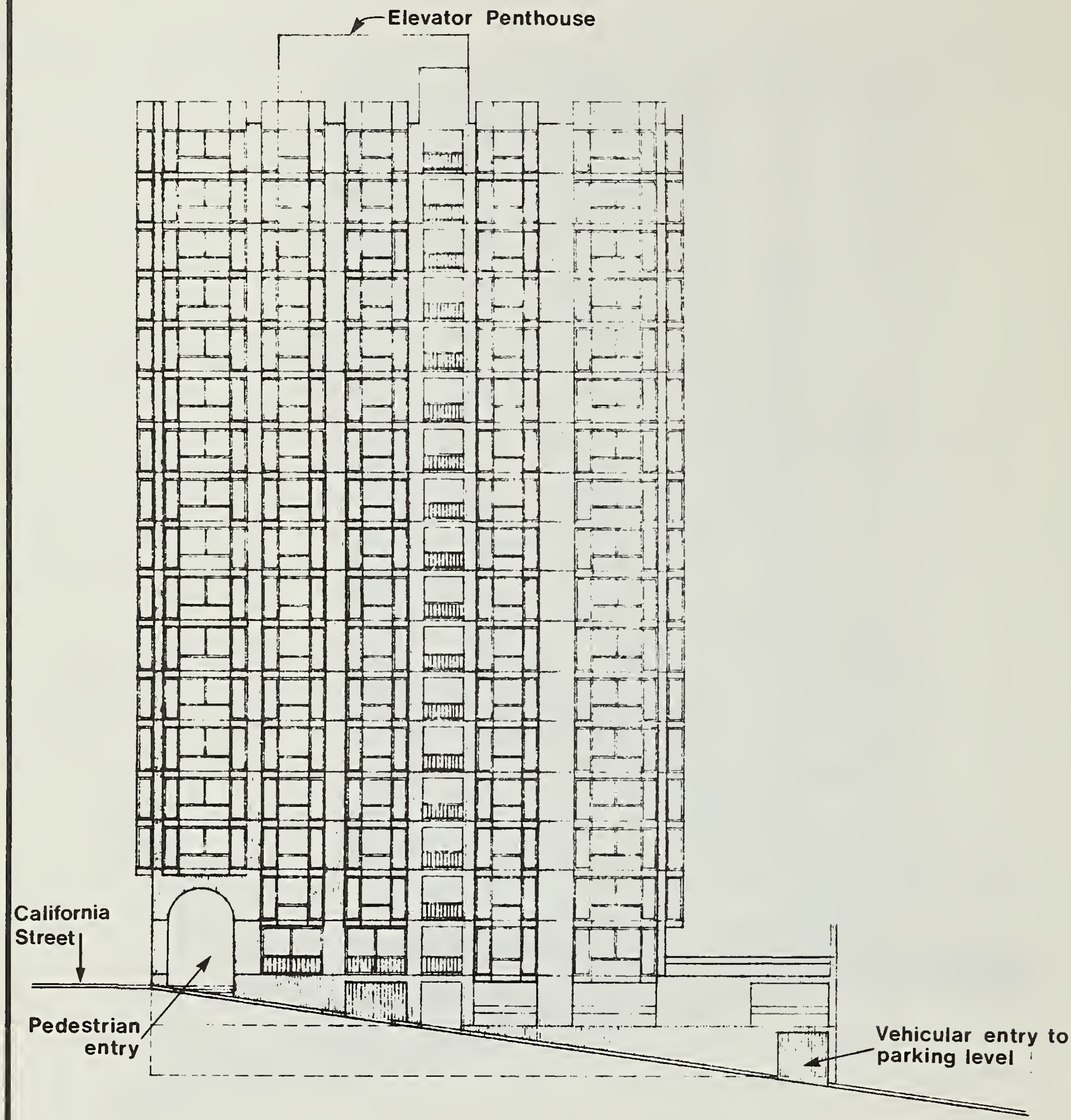


Alternative Building Design 'A' – West (Powell St.) Elevation.

0 10 20 40
Scale Feet

Source: Clement Chen & Associates

Figure No. 34



Alternative Building Design 'B'- West (Powell St.) Elevation.

0 10 20 40
Scale Feet

Figure No. 35

The project sponsor considers that the roof line would be a critical design feature of the proposed project. Design modifications different from that proposed are currently being evaluated. An assumption being made is that the total number of units and the gross square footage would not be different from those of the proposed project. Therefore, any redesign would be primarily for improvement in the visual quality and urban design aspects of the project; other issues would remain relatively unaffected.

2. Alternative Building Configuration

Another design alternative would relate to the configuration of the building. If the roofline and baseline of the structure were to step down Powell Street and California Street (see Figure 36, page 105), the building would visually reflect the topography and integrate with the lower height and scale of older, adjacent structures. Stepping the structure down the hill would emphasize the intersection of California and Powell Streets because the tallest portion of the building would be located adjacent to the intersection. Building setbacks above ground level, in conjunction with a stepped roofline and baseline would further break up the mass of the building improving scale relationships between the structure and adjacent lower buildings.

As with the proposed project, this alternative would require a rear yard variance to step down to the south property line (see Section I.D, Project Description, page 28). Without this variance, the design shown in Figure 36, page 105, would be approximately 7,000 square feet less in area than the proposed project, and area equal to about four units.

This stepped down design is being considered by the project sponsor. Factors being considered would include architectural merits of the design, marketability of the design, functional interior design, and the impacts on the economics of the project.

3. Lot Aggregation Alternative

Purchase of the property adjacent to the project site along California Street would allow construction of a building of lower profile over a larger site area, (that is, with smaller building area on-site) while maintaining the desired 93,900 gross square feet of building space. This would require the removal of a commercial parking garage which would eliminate more parking spaces on Nob Hill, unless additional parking were incorporated into the structure to compensate for the lost parking space. This alternative would

Stepped -Down Alternative Design "C"
West (Powell St.) Elevation

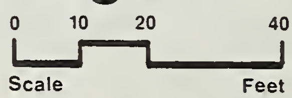


Figure No. 36

however, result in a larger, lower structure than the current proposal, one about six to eight stories lower in height (because the lot is similar in size to the project site) than the project as proposed, which would reduce view impacts on surrounding buildings.

4. Alternative that would Conform to Planning Code without Conditional Use or Variance Authorization

This alternative would be limited to 40 feet in height and would not encroach into the required 25-foot rear-yard area for the site. Such a building of 21,000 gross square feet could be accommodated on the site. Approximately six units and six parking spaces could be developed.

This alternative would lessen the visual impact to adjacent properties. Because there would be fewer residents and automobiles than in the project, transportation impacts would be less than those of the proposed project.

5. Project as Proposed but without Variance

If the project sponsor were unable to obtain a variance for the proposed project, the automobile elevator would have to be relocated. This design change would entail relocation of approximately nine parking spaces, which could be accommodated by either constructing a fourth parking level or reducing the total number of condominium units.

The project sponsor has rejected Alternative 4 and 5 for reasons of economical feasibility.

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[1]Planning Code Section 208(a).

[2]Planning Code Section 209.1(m).

[3]Planning Code Section 124.

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President

APPENDIX A

ARCHITECTURALLY SIGNFICANT BUILDINGS IN THE PROJECT AREA [1]

Block	Building	Year Constructed[2]	DCP Survey Rating[3]
242	790 California (Palazzo goldenmar)	1911	2
243	800 Powell (University Club)	1909	3
	830 Powell	1908	3
	840 Powell	1914	1
	850 Powell	1978	0
	840 California	1908	1
244	900 Mason (Fairmont Hotel)	1906	4
245	1000 California (Pacific Union Club)	1886 1911	5
246	1100 California (Grace Cathedral)	1925	5
	1055 Taylor (Cathedral House)	1911	3
253	1038-42 Pine	1909	1
	1044 Pine	1910	1
	1060 Pine	1909	1
	1096 Pine	1913	1
254	1001 California (Morsehead Apartments)	1914	4
	831-849 Mason	1917	4
	819-821 Mason	1908	1
	904-908 Pine	1915	1
	920 Taylor	1910	1
	1021 California	1911	3
	930 Pixie		3
255	905 California (Stanford Court)	1912	2
	999 California (Mark Hopkins Hotel)	1925	1

256 Project Block	655 Stockton	1915	1
	645 Stockton	1928	2
	621 Stockton	1917	0
	601 Stockton	1919	0
	730-736 Pine	1913	2
	720-730 Powell	1910	1
	738-742 Pine	1909	2
	851 California (Arcona Apartments)	1910	2
	16-18 Joice	1907	0
	845 California	1931	0
257	600 Stockton (Cogswell College)	1908	4
271	566 Bush (Notre Dame des Victoires Rectory)	1907	2
	598 Bush	1908	1
272	618 Bush	1914	1
	626 Bush	1914	1
	650 Bush	1912	1
	660 Bush	1910	1
	698 Bush (Kentworth Apartments)	1907	1
273	821-835 Pine	1923	1
	726-734 Bush	1915	1
	776 Bush	1911	0
	700 Mason	1911	0
274	901-929 Pine	1908	4
	800 Bush	1914	1
	820 Bush	1916	3
	870 Bush (Firehouse)		1
	828 Taylor	1910	2
	850 Taylor	1909	0
	985 Pine	1911	2
	977 Pine	1907	2
	961 Pine	1912	2
	955 Pine	1911	2
	935 Pine	1921	1
	945 Pine	1922	1
275	960 Bush	1917	2
	972 Bush	1913	3
	998 Bush	1910	2
	1035 Pine	1924	2

Source: Department of City Planning 1976 Architectural Survey, August 1976.

[1]See Figure 21 for the location of architecturally significant buildings, page 32.

[2]Records at the Assessors ofice, City and County of San Francisco.

[3]DCP Survey refers to an architectural survey of all buildings in the City conducted by the Department of City Planning between 1974 and 1976. Those buildings considered to have architectural value were rated as to the degree of architectural value from a low of "0" to a high of "5". Factors considered included architectural significance, urban design context and overall environmental significance. In the estimation of the inventory participants, buildings rated "3" or better represent approximately the best 2% of the City's architecture.

January 29, 1981

APPENDIX B

LEVELS OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS*

Level of Service A

Level of Service A describes a condition where the approach is an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.

Level of Service B

Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.

Level of Service C

Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.

Level of Service D

Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.

Level of Service E

Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting up-stream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.

Level of Service F

Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.

*City and County of San Francisco, Department of Public Works, Traffic Engineering Division.

APPENDIX C

PEDESTRIAN FLOW DEFINITIONS

Flow Description	Walking Speed Choice	Conflicts	Average Flow Rate (P/F/M)*
Open	Free Selection	None	0.5
Unimpeded	Some Selection	Minor	0.5 - 2
Impeded	Some Selection	High Indirect Interaction	2 - 6
Constrained	Some Restriction	Multiple	6 - 10
Crowded	Restricted	High Probability	10 - 14
Congested	All Reduced	Frequent	14 - 18
Jammed	Shuffle Only	Unavoidable	**

* P/M/F = Pedestrians per foot of effective sidewalk width per minute

** For Jammed Flow, the (attempted) flow rate degrades to zero at complete breakdown.

SOURCE: Pushkarev, Boris and Jeffry M. Zupan, Urban Space for Pedestrians, Cambridge, Mass ., MIT Press, 1975

APPENDIX D

MICROCLIMATE IMPACT STUDY

I. INTRODUCTION

Architects, engineers, and city planners designing urban structures are limited by the lack of information on wind effects brought on by the presence of these structures, such as discomfort for pedestrians and wind-caused mechanical problems with doors, windows, and ventilating systems. Once a structure is built, remedial measures (if they exist at all) are usually very expensive.

It is virtually impossible to anticipate, by mathematical analysis or intuition, the winds that will be caused by a structure since they are determined by very complex interactions of forces. Fortunately, it is possible to predict the wind patterns and pressures around structures by testing scale models in a wind tunnel that can simulate natural winds near the ground. This allows the designer to foresee possible environmental and mechanical problems, and alleviate them before the building is erected.

Data from wind tunnel tests can be combined with climatological data to analyze the effect of a proposed structure on pedestrians in terms of human comfort. The frequency distribution of wind strengths at pedestrian level, combined with temperature data and shadow patterns of the proposed structure and its surroundings, can be used to forecast comfort at pedestrian levels.

II. SUMMARY

The project site is at the southeast corner of the intersection of Powell Street and California Street on Nob Hill in San Francisco. The site is west of the main highrise area in San Francisco, in an area with a mixture of newer highrise buildings and older, three to five-story buildings.

The project would be a 16-story condominium building with its main entrance at the California/Powell Street corner.

Wind conditions near the site were tested for northwesterly and westerly winds, the two most frequent directions. Under northwesterly conditions, the major flow is along California Street, where moderately high to high winds were found. Powell Street winds were found to be low and turbulent.

For the westerly winds, the major flow also was along California Street, with speeds ranging from low to moderately high. Powell Street winds were low and turbulent.

The proposed building generally would increase winds along Powell Street south of California Street by channeling winds south along this route. Increases would be about 23% for northwest winds reaching the "high" category, and about 20% for west winds, also reaching the "high" category. Winds along California Street east of the site would be diminished due to "shelter" provided by the project, with decreases ranging from 2 to 12% for northwest winds and 3 to 31% for west winds.

III. MODEL AND WIND TUNNEL FACILITIES

Model

A scale model of the proposed building and structures surrounding the area of a distance of several blocks was constructed of polystyrene and urethane foam.

The model scale was 1 inch equals 30 feet. The model of the surrounding city area was built to this scale with building configurations and heights obtained from the Sanborn maps at the San Francisco Department of City Planning.

Wind Tunnel Facilities

The Environmental Impact Planning Corporation boundary layer wind tunnel was designed specifically for testing architectural models. The working section is 7 feet wide, 43 feet long, and 5 feet high. Wind velocities in the tunnel can be varied from 3.5 mph to 13 mph. The flow characteristics around sharp-edged objects such as architectural models are constant over the entire speed range. Low speeds are used for photographing tracer smoke; high speeds for windspeed measurements.

Simulation of the characteristics of the natural wind is facilitated by an arrangement of turbulence and roughness generators upwind of the test section. These allow adjustments in wind characteristics to provide for different scale models and varying terrain upwind of the project site.

Measurements of windspeed around the model are made with a hotwire anomometer, a device that relates the cooling effect of the wind on a heated wire to the actual windspeed. The flow above the city is measured by a Pitot tube connected to a micromanometer. The Pitot tube and micromanometer measure directly the pressure difference between moving and still air. This pressure difference is then related to the actual windspeed. Flow visualization is achieved by use of floodlit smoke.

IV. TESTING METHODOLOGY

Simulation of Flow

The most important factors in ensuring similarity between flow around a model in a wind tunnel and flow around the actual building are the structure of the approach flow and the geometric similarity between the model and the prototype. A theoretical discussion of the exact criteria for similarity is not included in this paper, but may be found elsewhere (Cermak, 1966, or Cermake and Arya, 1970).

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The variation of windspeed with height (wind profile) was adjusted for the scale of the model and the type of terrain upwind of the site. The profiles used here were those generally accepted as adequately describing the flow over that type of terrain (Lloyd, 1967).

Testing Procedure

The windflow characteristics of the site in its present state were investigated to ascertain the present wind environment. Windspeeds and wind directions at specified points throughout the site were measured and recorded. Wind direction was measured by releasing smoke at each point and recording the direction in which the smoke traveled. Windspeed measurements were made at the same points, at a scale height of five feet above the ground. A hotwire anemometer probe is required to make these measurements within a fraction of an inch of the model surfaces. The probe is repeatedly calibrated against the absolute reading of a Pitot tube and micromanometer. Velocity readings close to the model are generally accurate to within 10% of the true velocity.

Before and after each test run, a calibration measurement was made above the model. The purpose of these measurements was to relate the wind tunnel measurements to actual wind records from U.S. Weather Service wind instrumentation located on the Federal Building at 50 Fulton Street.

V. TEST RESULTS AND DISCUSSION

Tests of windspeed and wind direction were conducted for two wind directions.

Measured windspeeds are expressed as percentages of the calibration windspeed, which corresponds to the actual windspeed at the San Francisco Weather Station. Thus, a plotted value of 52 means that the measured windspeed is expected to be 52% of the windspeed recorded by the Weather Service when winds are from that particular direction.

The plotted values can be interpreted in terms of general "windiness", using the scale below. This scale is subjective and is based on information gathered from similar studies in San Francisco.

Velocity	Percentage of calibration windspeed
Low	0-0.19
Moderately low	0.20-0.29
Moderate	0.30-0.49
Moderately high	0.50-0.69
High	0.70-1.00
Very high	more than 1.00

It should be noted that the plotted values are not actual windspeeds, but ratios. Thus, a point having a "very high" windspeed would still experience light winds on a near-calm day. Likewise, a point found to have "low" winds could experience significant winds on an extremely windy day.

Wind direction is indicated by an arrow pointing in the direction of flow. Where wind direction fluctuated, two arrows representing the principal flow directions were plotted. Areas of fluctuating winds are normally turbulent as are areas of spiraling motion; the latter are denoted by curved arrows.

Northwest Wind

Northwest winds occur 12 to 39% of the time in San Francisco, depending on the season. (In meterorology, a northwest wind blows from the Northwest.) Northwesterly and westerly winds are the most frequent and the strongest winds at all seasons in San Francisco. Northwest winds exceed 13 miles per hour 35% of the time and 25 miles per hour 3% of the time in summer. Wind frequencies and speeds are lower in spring, fall, and winter.

Existing wind strengths for the northwesterly direction are shown in Figure 1. Wind flows are generally along California Street. Windspeeds at the California/Powell Street intersection are moderately high to high. East of the site along California Street, winds range from low to moderately high. South of the project site along Powell Street, winds are low and turbulent.

Under Northwest wind conditions, the project would increase winds by 5 to 10% at the west side of the California/Powell intersection. Wind decreases would occur along California Street east of Powell Street with decreases ranging from 2 to 12%.

The proposed building would divert more wind south along Powell, increasing winds by as much as 23% from moderately low to moderately high. The increased wind would decelerate to existing conditions at a point beginning about 20 feet south of the measuring point shown on Figure 2. The proposed rear yard plaza south of the proposed building would have a moderately low windspeed ratio.

West Wind

West winds occur between 15 and 40% of the time depending on the season. They exceed 13 miles per hour 29% of the time and 25 miles per hour 7% of the time in summer. Wind strengths and frequencies are somewhat lower in spring, fall, and winter.

Existing conditions under westerly winds are shown in Figure 3. Highest winds occur on the south side of the California/Powell Street intersection. Winds along California Street range from low to moderately high; winds along Powell Street are low and turbulent.

For west winds, the project would increase the moderate to moderately high winds southwest of the California and Powell Streets intersection by from 0 to 3%. East of Powell, winds along California Street would be reduced with percentage reductions ranging from 0 to 12%. Winds along Powell adjacent to the site would increase by about 20%, increasing from low levels to moderate levels. The proposed rear plaza would have light and variable winds.

VI. SHADOW-PATTERN ANALYSIS

Elements of Comfort in San Francisco

Elements that influence comfort are temperature, humidity, sunshine, precipitation, and wind. Their relative importance varies with geographic location and the characteristics of the local climate. For the San Francisco region, the most important factors are temperature, solar radiation, and wind.

Temperatures in San Francisco are moderate due to the influence of marine air. Temperatures are highest in fall and lowest in winter; both spring and summer are normally cool, with a high frequency of low clouds and fog.

The intensity and frequency of sunshine are normally integrated into a single figure and expressed as "percentage of possible sunshine". San Francisco has two peak periods of sunshine, in April and September. These months normally correspond to the transition periods between the strong marine airflow of summer and the transient storms of winter.

Wind in San Francisco is strongest in late spring and throughout the summer months, and lightest in winter. Summer winds have a large daily variation, with light winds during night and morning hours and peak winds during afternoon hours. Westerly winds are dominant in all months with the exception of December and January.

Sun-Shade Patterns

Sun-shade patterns for the first day of each season at 10:00 a.m, 1:00 p.m. and 4:00 p.m. are shown in Figures 5 to 13. At 10:00 a.m. the project shadow would extend across Powell Street to the Stanford Court Hotel in summer (Figure 5). In the spring and fall the project's shadow would extend across the California/Powell intersection towards the northeast (Figure 6). In winter (Figure 7), the project's shadow would extend down Powell Street to the north. At 1:00 p.m. during summer (Figure 8) the project would cast new shadow on pedestrian areas across California Street. In spring and fall (Figure 9), a similar change would occur, but the new area of shade would be larger. In winter (Figure 10), the project would extend across California Street and partially down Miles Court. At 4:00 p.m. in the summer (Figure 11) the project's shadow is cast toward the east across the rooftops of neighboring buildings, and does not affect pedestrian areas. In spring and fall (Figure 12), the project would add to the existing shade along the south side of California Street. In winter (Figure 13) the entire area near the site is presently shaded, and the project would not add any new area of shade.

VII. MITIGATION MEASURES

There are two types of mitigating measures for wind. The first is to make major design changes to reduce winds near the project, such as different building orientations or changes in size or shape. Rotating the building 90 degrees would reduce wind impacts because the building would intercept less wind, but lot shape restricts this possibility. Alternatively, smaller, less wide designs would intercept less wind and have less effect on winds.

The second type of mitigation measure involves additions to the project that would provide local shelter for pedestrians. Small structures such as kiosks for newspaper or flower vendors, telephone booths, and shelters at bus stops can serve in this way. Similarly, street trees and other vegetation can function as windbreaks. This type of measure would be appropriate at the California and Powell Street intersection. Extensive use of vegetation, screens, fences and other windbreaks would be necessary to ensure usability of the rooftop garden.

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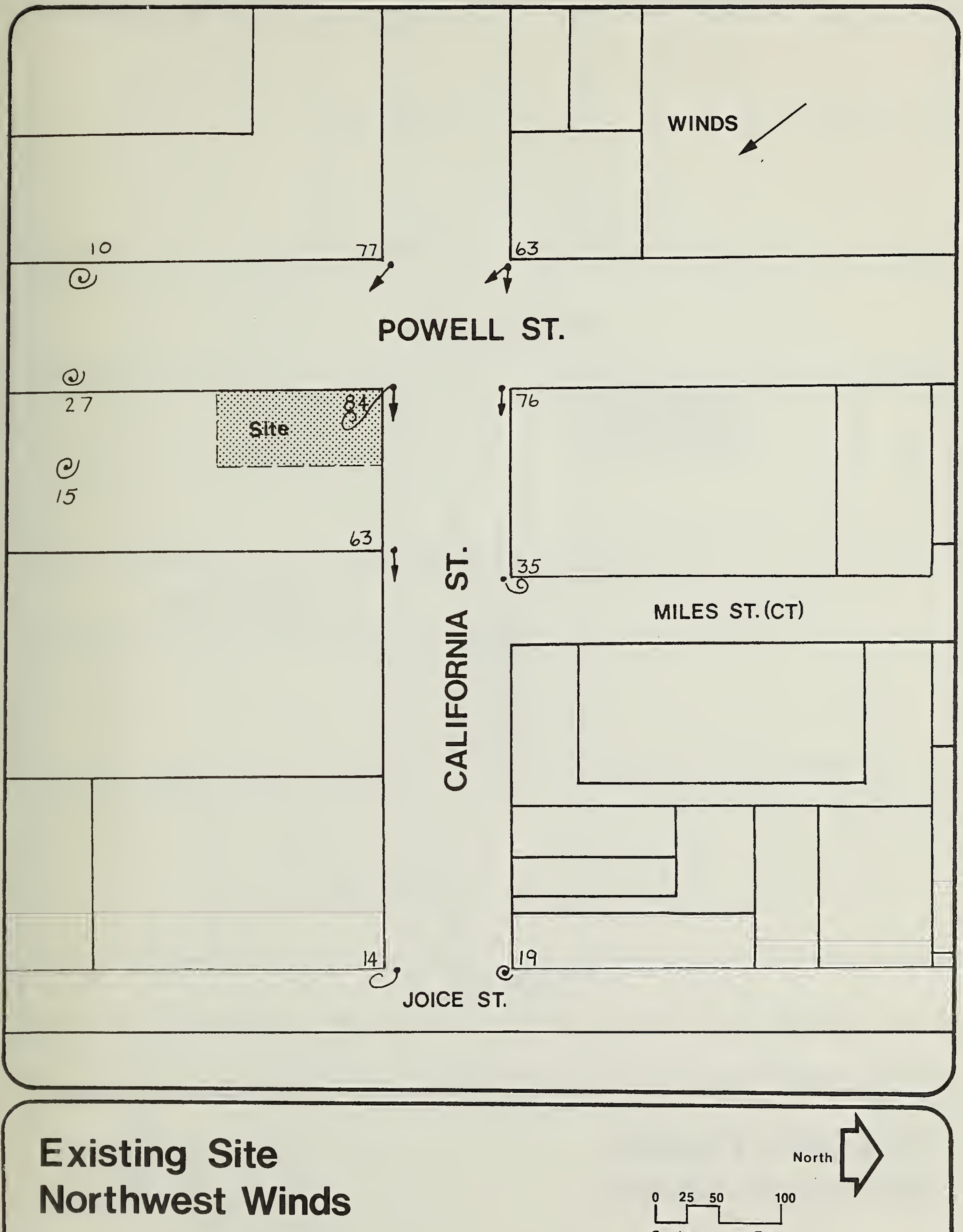
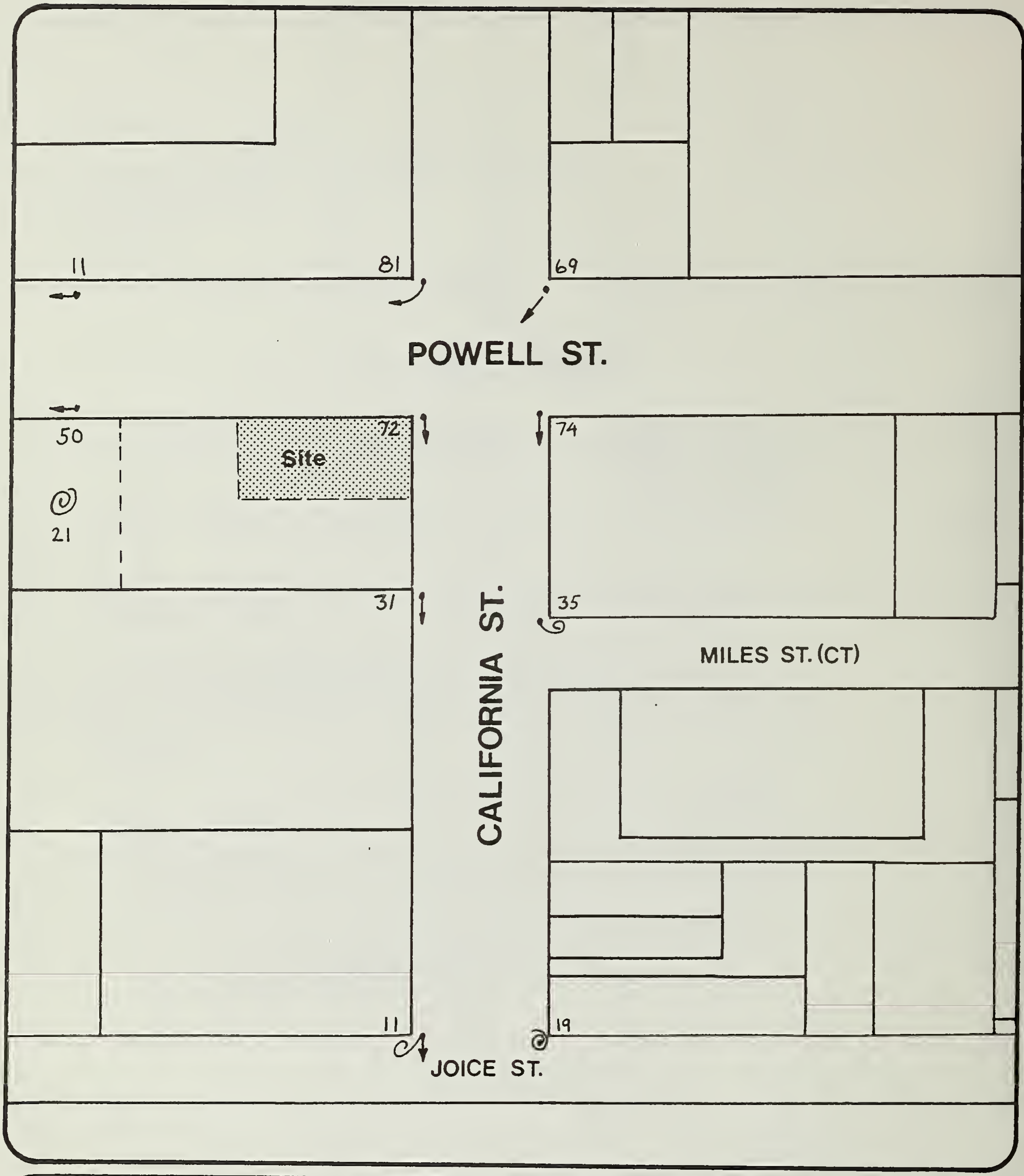


Existing Site Northwest Winds

Figure No. 1

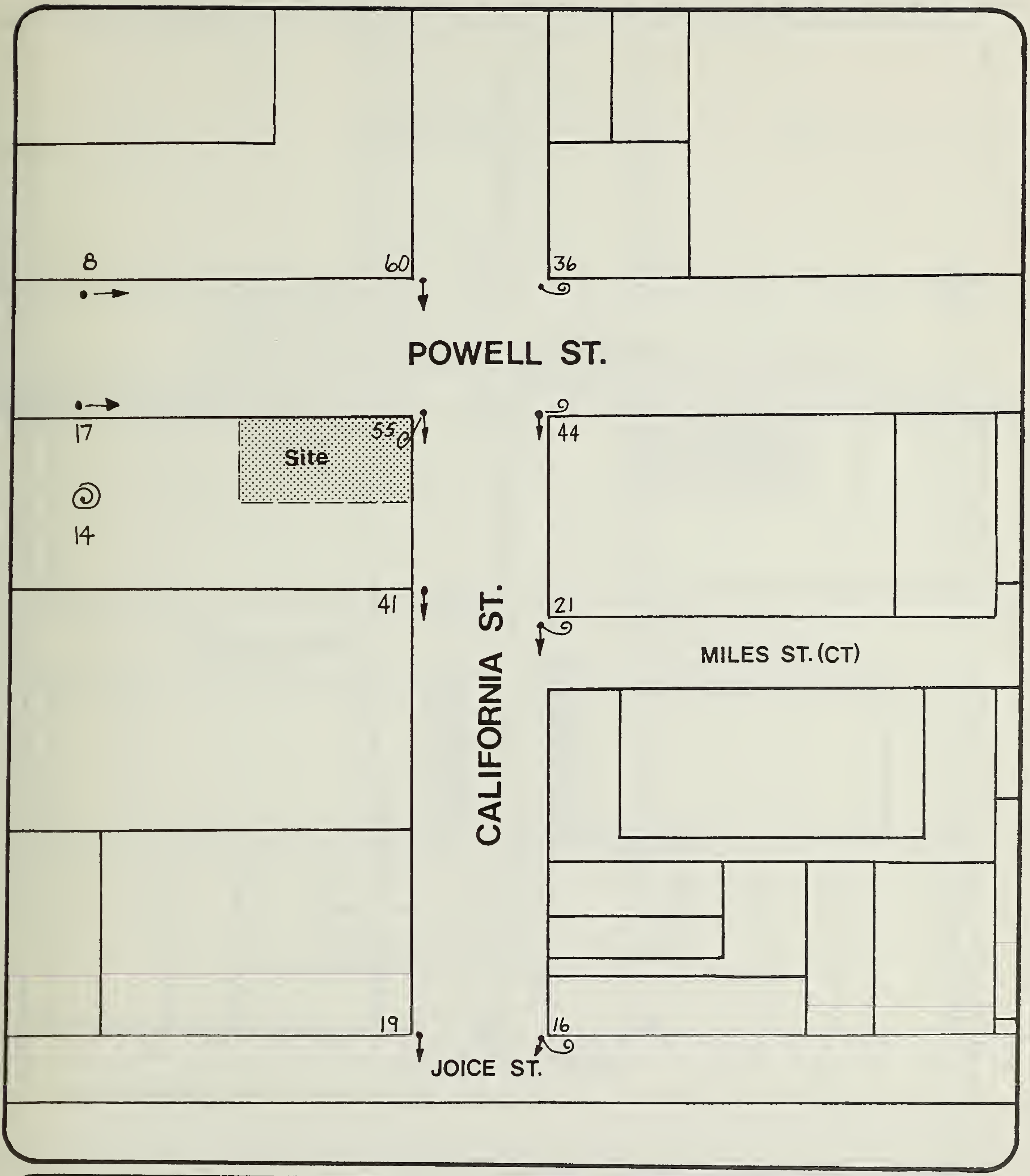


Proposed Project
Northwest Winds

North

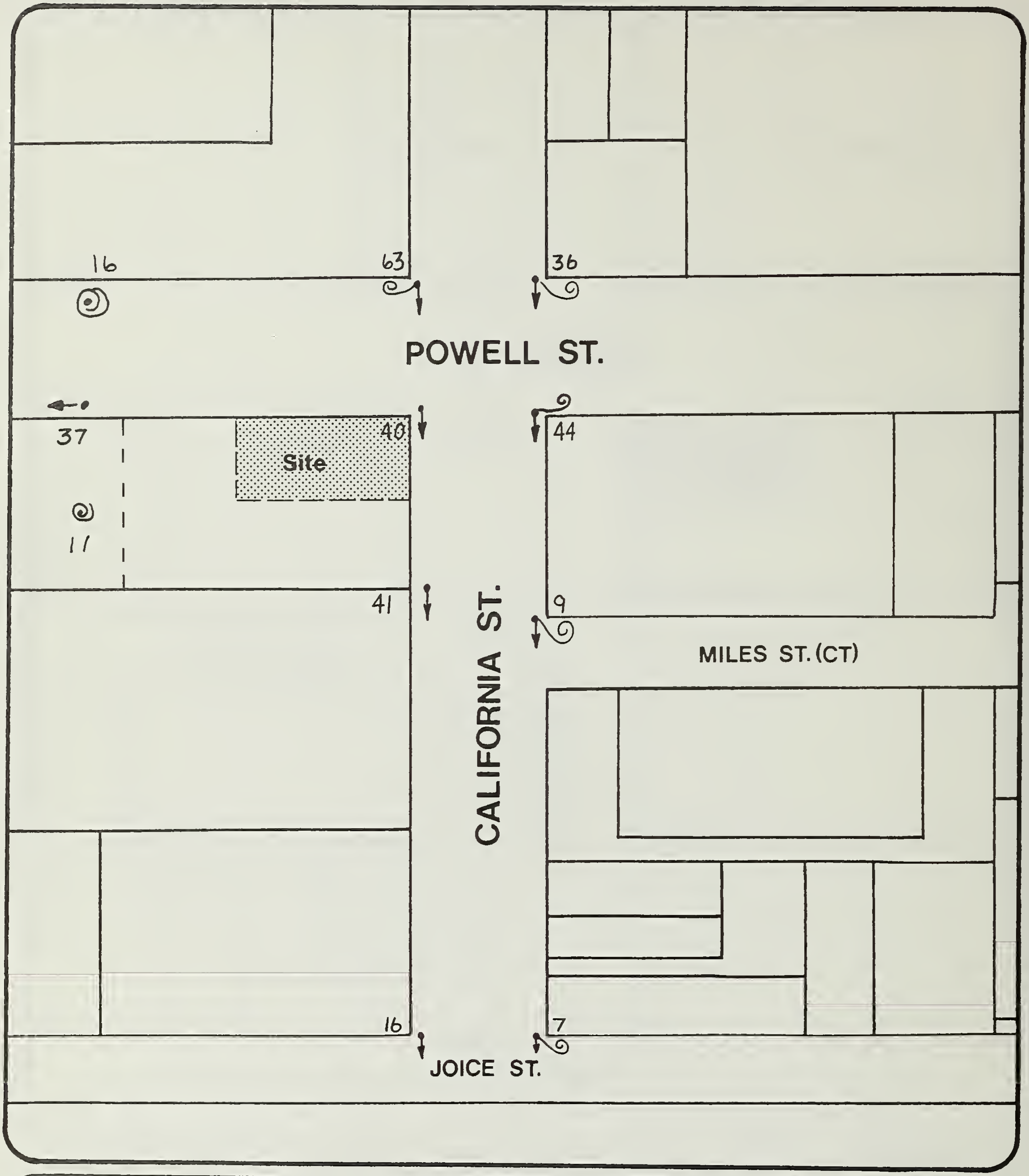
0 25 50 100
Scale Feet

Figure No. 2



Existing Site West Winds

Figure No. 3

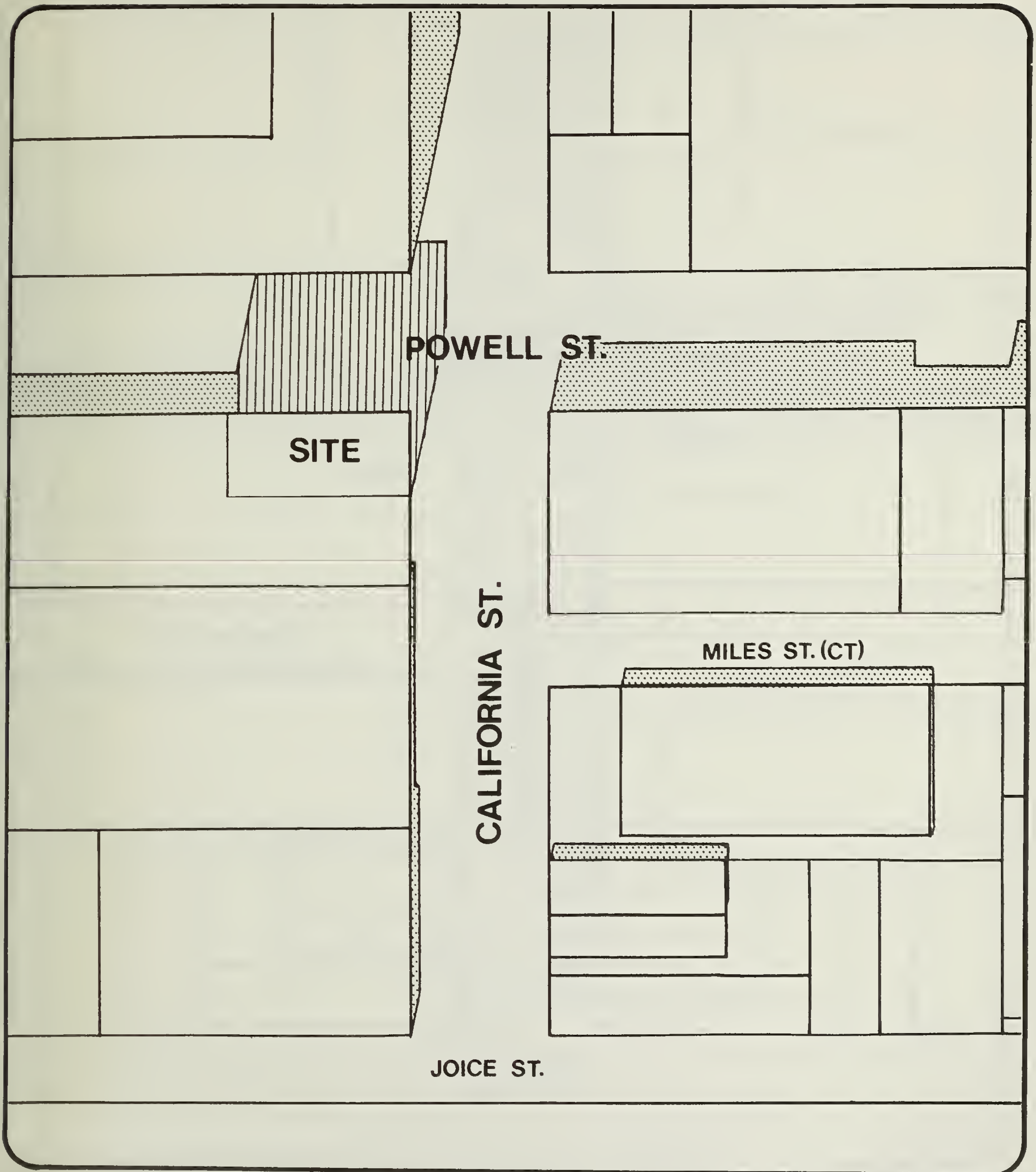


Proposed Project
West Winds

North

0 25 50 100
Scale Feet

Figure No. 4



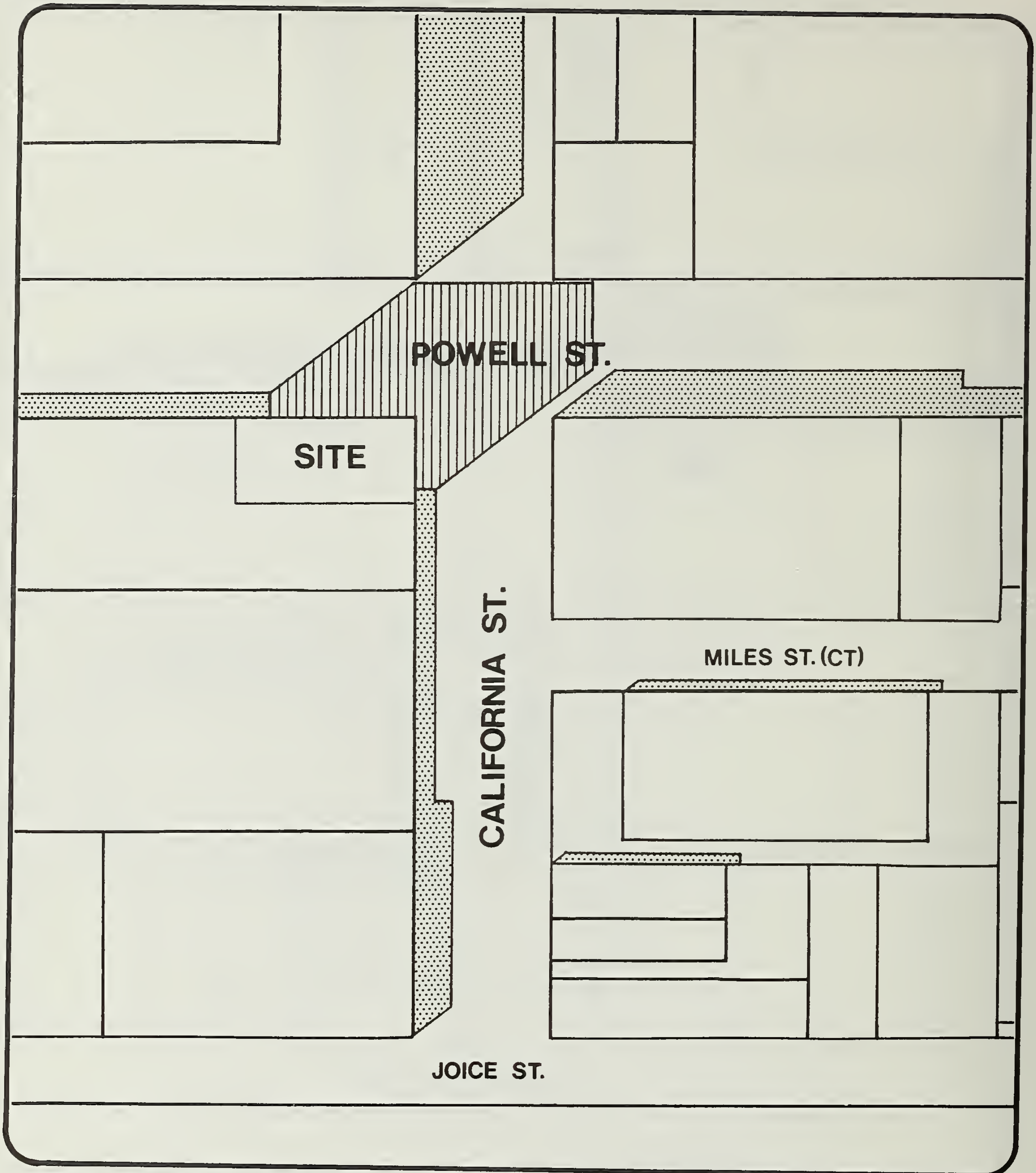
Shadow Patterns
Summer 10:00a.m.

Existing Shadow
Additional Shadows

North

0 25 50 100
Scale Feet

Figure No. 5



Shadow Patterns
Spring/Fall 10:00a.m.

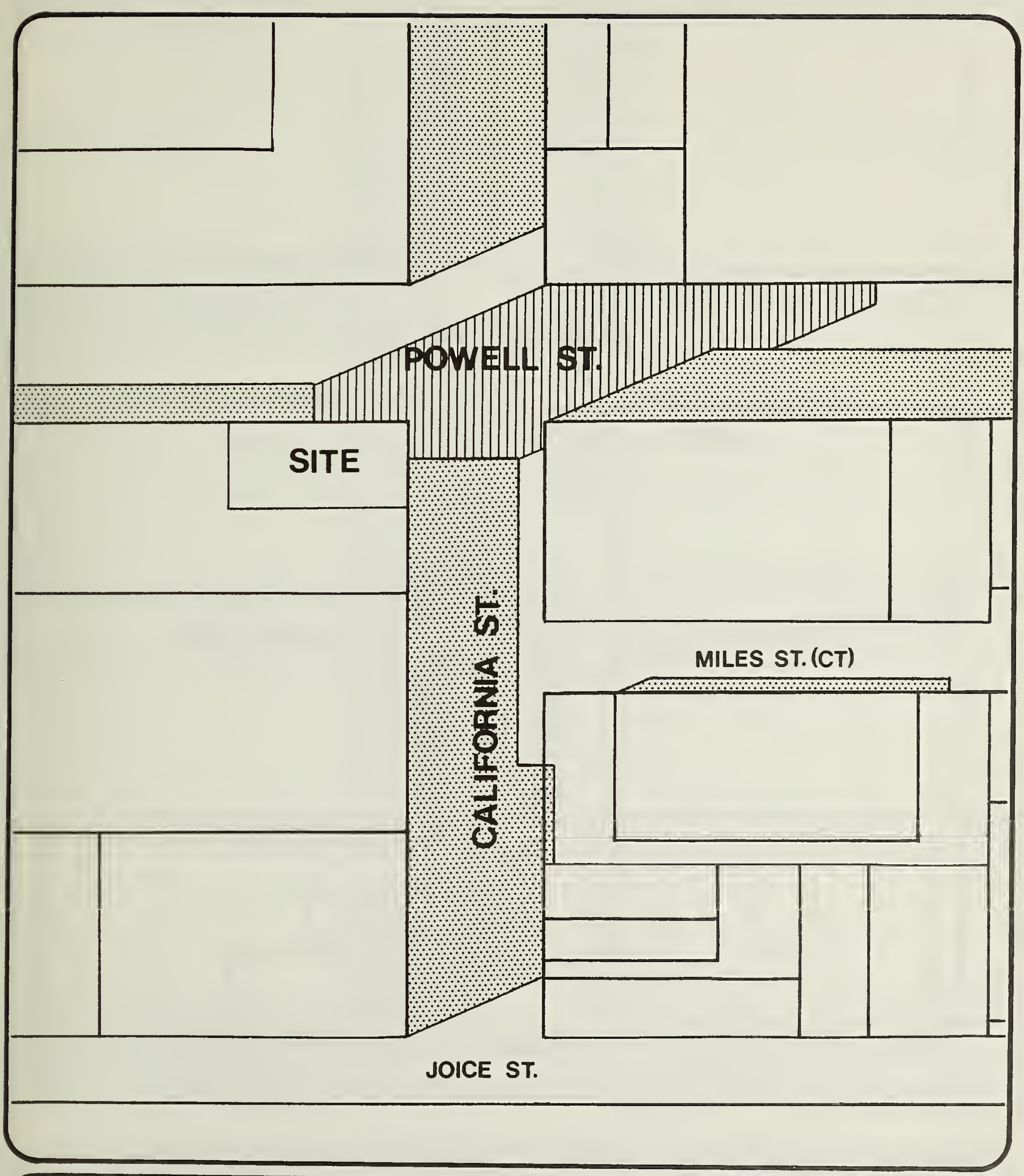
Existing Shadow

Additional Shadows

0 25 50 100
Scale Feet

North

Figure No. 6



Shadow Patterns
Winter 10:00 a.m.

Existing Shadow

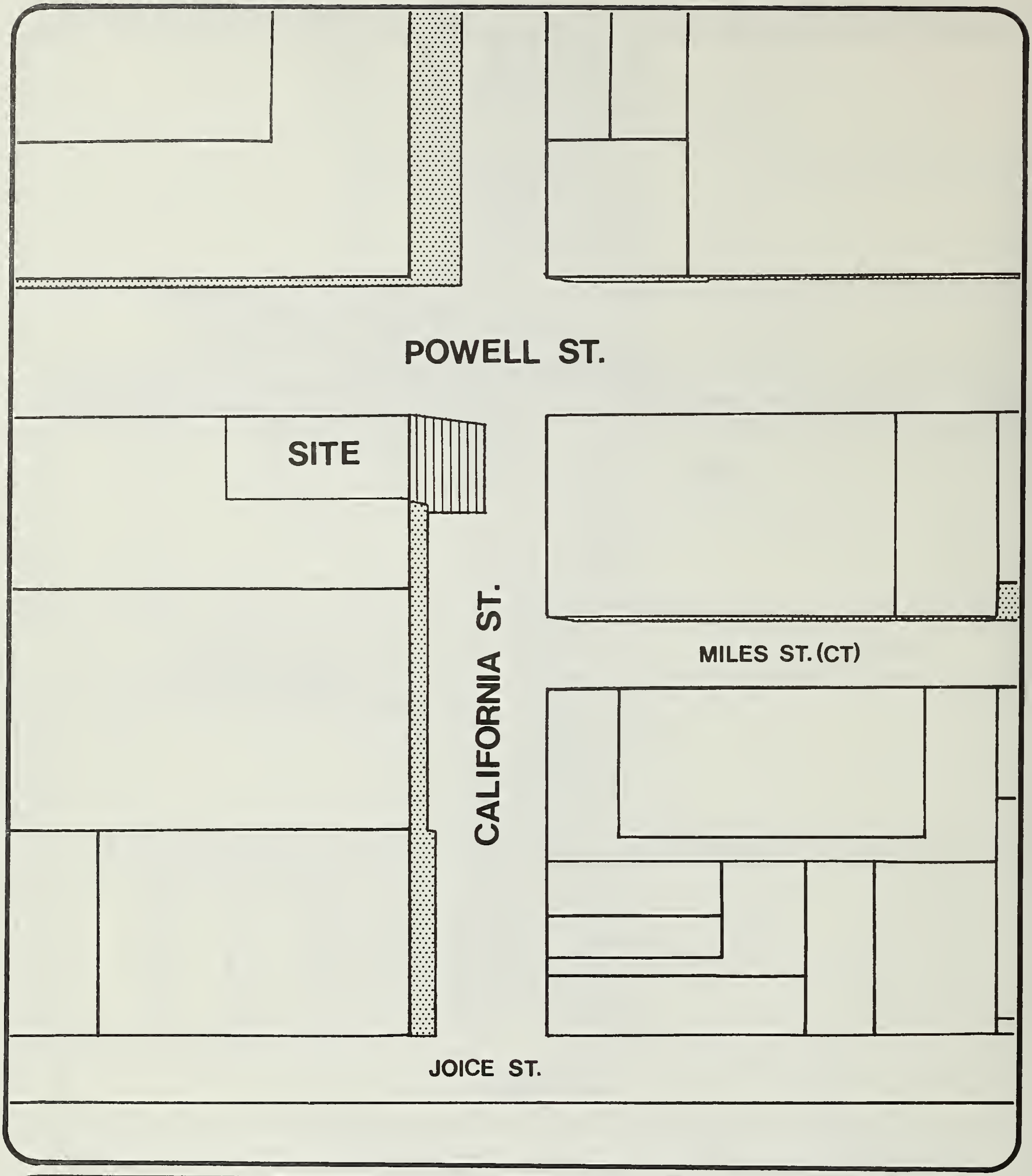
Additional Shadows

North

0 25 50 100

Scale Feet

Figure No. 7



Shadow Patterns
Summer 1:00p.m.

Existing Shadow
Additional Shadows

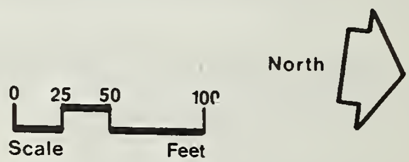
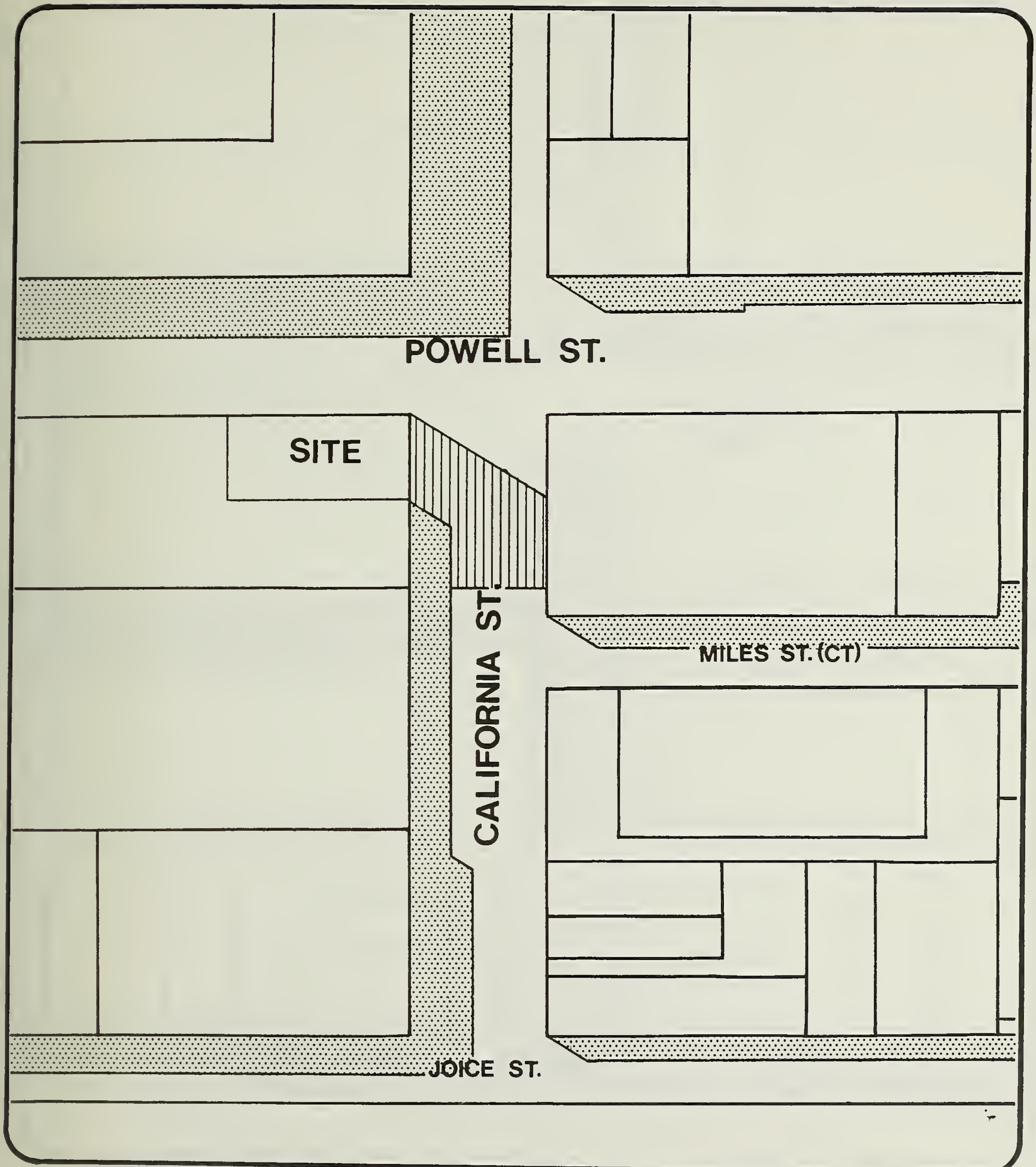


Figure No. 8



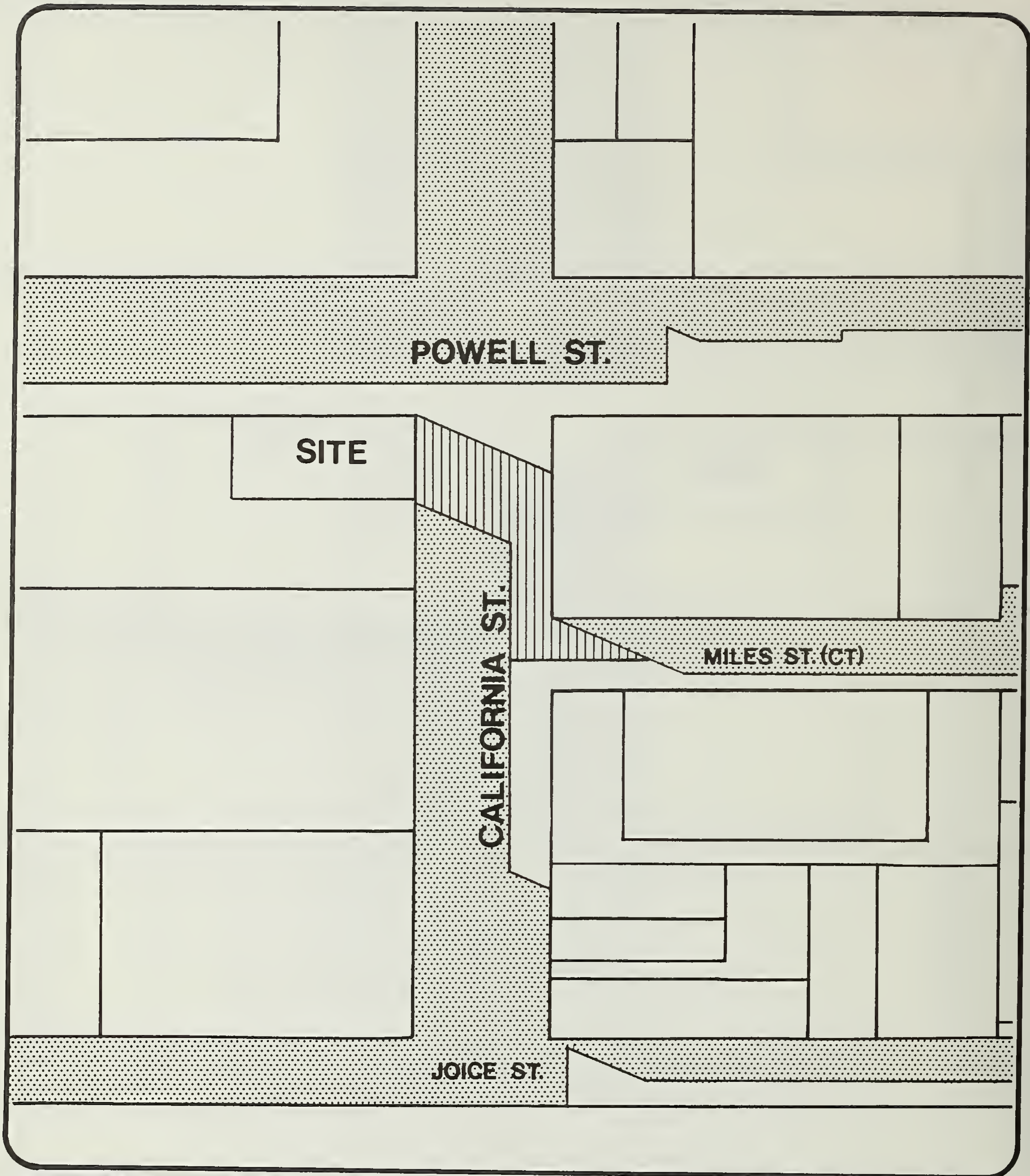
Shadow Patterns
Spring/Fall 1:00p.m.

Existing Shadow
Additional Shadows

North

0 25 50 100
Scale Feet

Figure No. 9



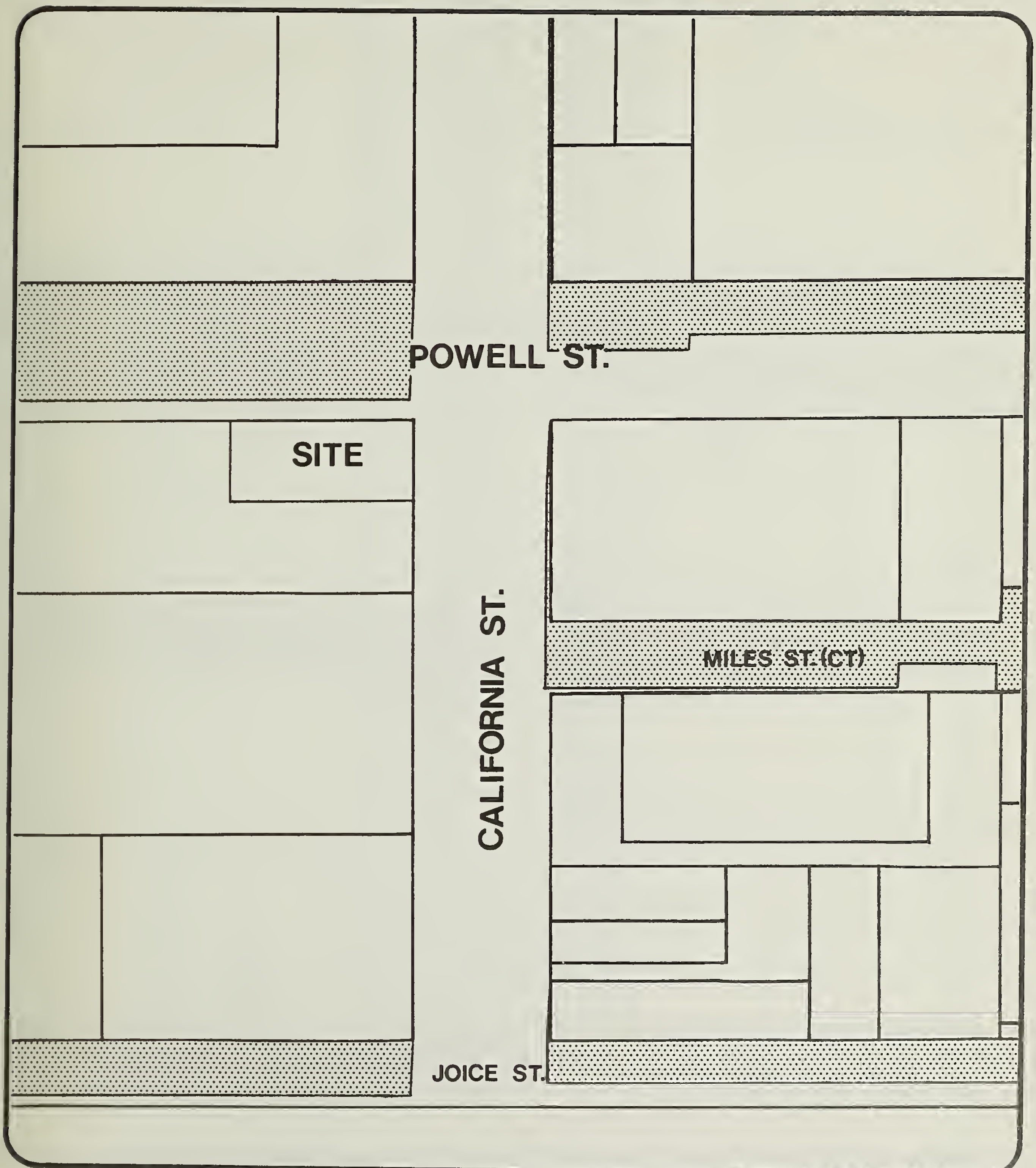
Shadow Patterns
Winter 1:00p.m.

Existing Shadow
Additional Shadows

Scale 0 25 50 100 Feet

North

Figure No. 10



Shadow Patterns
Summer 4:00p.m.

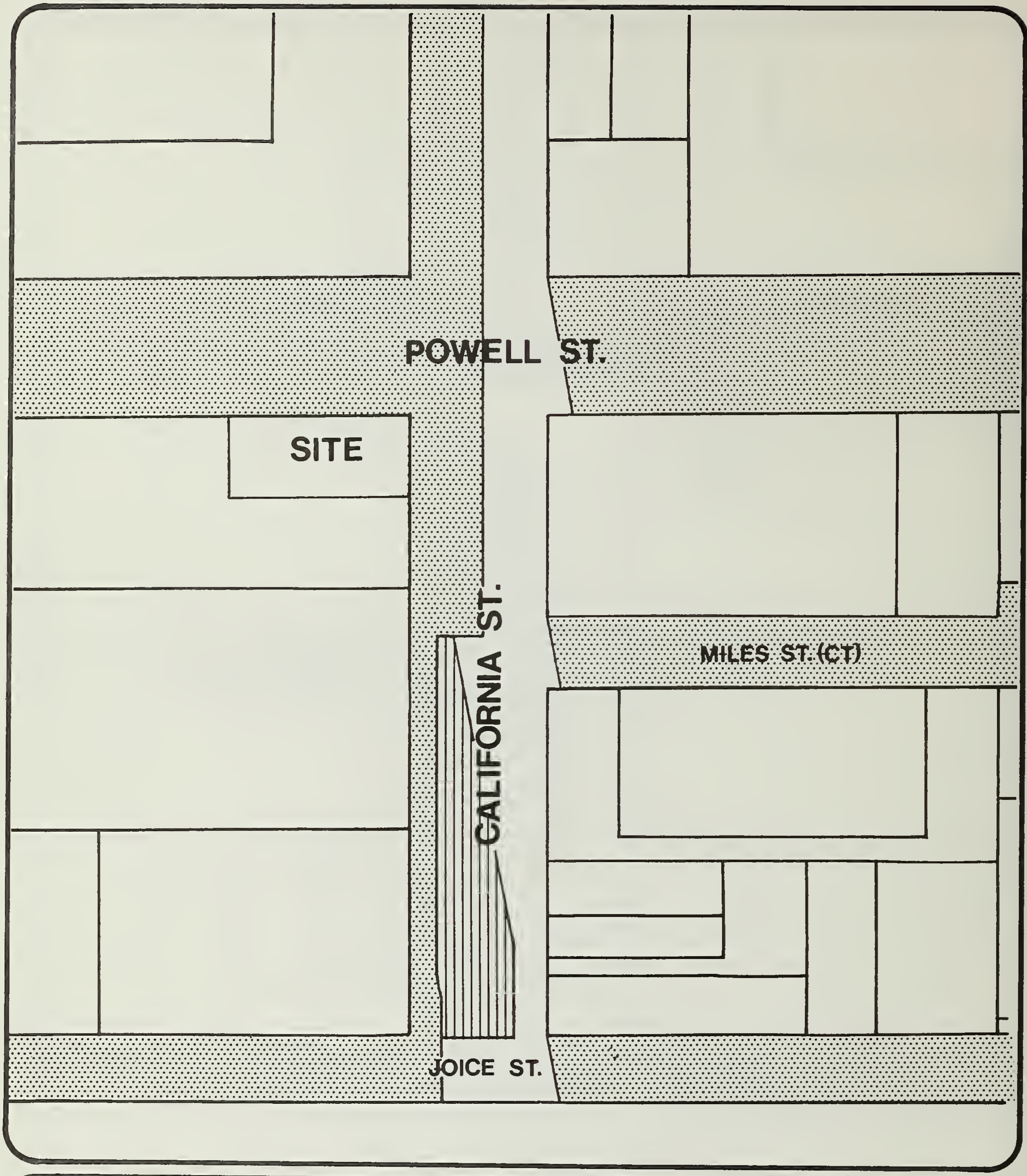
Existing Shadow

Additional Shadows

Scale 0 25 50 100 Feet

North

Figure No.11



Shadow Patterns

Spring/Fall 4:00p.m.

Existing Shadow

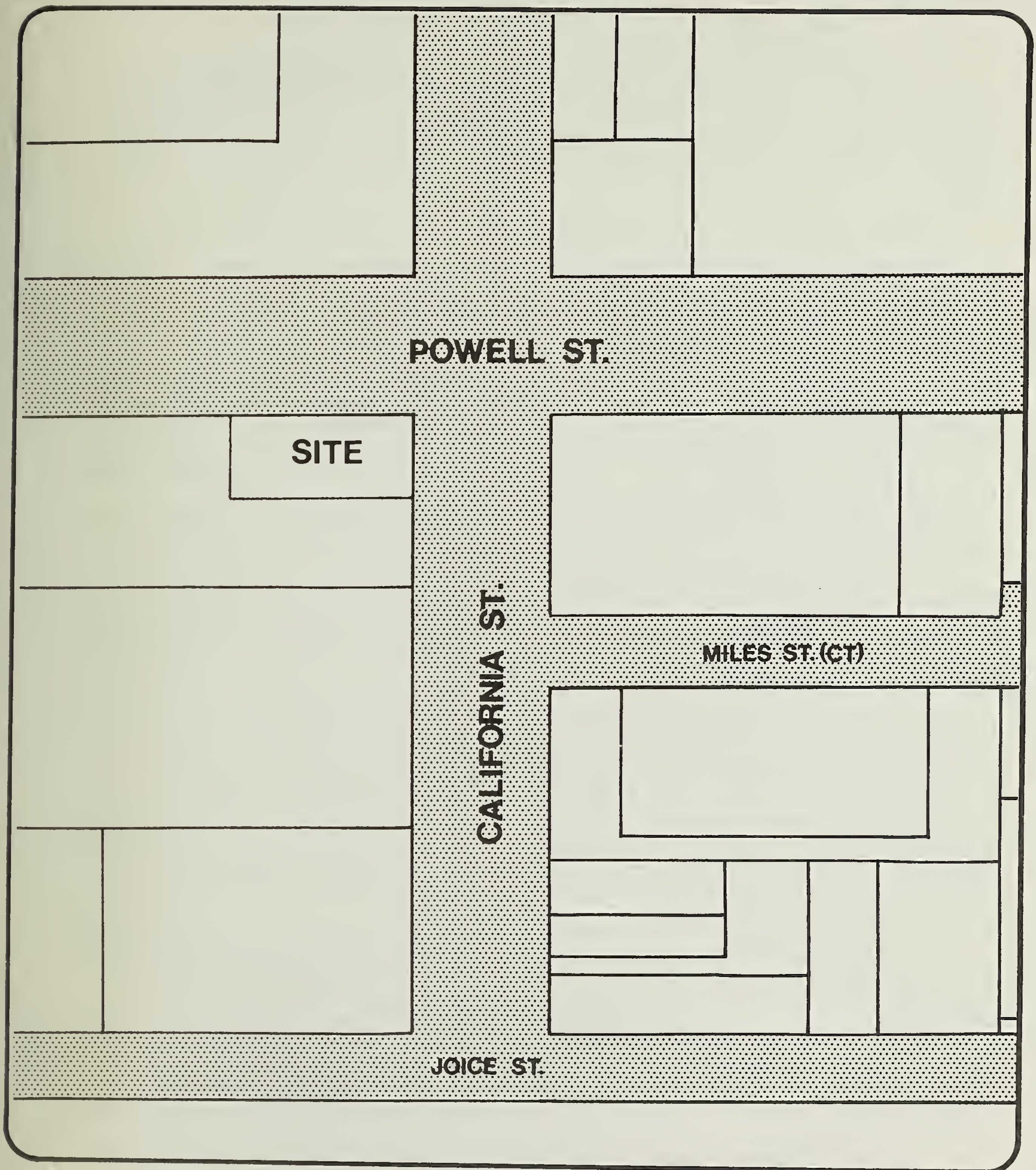
Additional Shadows

North

0 25 50 100

Scale Feet

Figure No.12



Shadow Patterns
Winter 4:00p.m.

Existing Shadow

Additional Shadows

North

0 25 50 100

Scale Feet

Figure No.13

APPENDIX E

FUNDAMENTAL CONCEPTS OF ENVIRONMENTAL NOISE

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Part I of this Appendix provides background information to aid in understanding the technical aspects of the noise sections. Part II discusses the noise measurement survey conducted for this report.

I. Fundamentals of Environmental Noise

Three dimensions of environmental noise are important in determining subjective response. These are:

a. the intensity or level of the sound;
b. the frequency spectrum of the sound;
c. the time-varying character of the sound.

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or Hertz (Hz). Most of the sounds which we hear in the environment do not consist of a single frequency, but of a broad band of frequencies, differing in level. The quantitative expression of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Fortunately, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively and severely deemphasizes the importance of frequency components below 1000 Hz, with mild deemphasis above 5000 Hz. This type of frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency midrange.

The weighting curve described above is called "A" weighting, and the level so measured is called the "A-weighted sound level", or simply "A-level". The A-level in decibels is expressed "dBA"; the appended letter "A" is a reminder of the particular kind of weighting used for the measurement. In practice, the A-level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. All U.S. and international standard sound level meters include such a filter. Typical A-levels measured in the environment and in industry are shown in Figure E-1.

Although the A-level may adequately describe environmental noise at any instant in time, the fact is that the community noise level varies continuously. Most environmental noise includes a conglomeration of distant noise sources which creates a relatively steady background noise in which no particular source is

identifiable. These distant sources may include traffic, wind in trees, industrial activities, etc. These noise sources are relatively constant from moment to moment, but vary slowly from hour to hour as natural forces change or as human activity follows its daily cycle. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities or single vehicle passages, aircraft flyovers, etc., which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used. The L10 is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L10 is considered a good measure of the "average peak" noise. The L50 is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period. The L50 represents the median sound level. The L90 is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period. The L90 is used to describe the background noise.

As it is often cumbersome to describe the noise environment with these statistical descriptors, a single number descriptor called the Leq is also widely used. The Leq is defined as the equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the time-varying sound level during the same time period. The Leq is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However most household noise also decreases at night and exterior noises become very noticeable. Further most people are sleeping at night and are very sensitive to noise intrusion.

To account for human sensitivity to nighttime noise levels a descriptor, Ldn, (day night equivalent sound level) was developed. The Ldn divides the 24-hour day into the daytime of 7 am to 10 pm and the nighttime of 10 pm to 7 am. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Ldn, then, is the A-weighted average sound level in decibels during a 24-hour period with 10 dBA added to the hourly Leqs during the nighttime. For highway noise environments the Leq during the peak traffic hour is approximately equal to the Ldn.

The effects of noise on people can be listed in three general categories:

1) subjective effects of annoyance, nuisance, dissatisfaction;
2) interference with activities such as speech, sleep, learning;
3) physiological effects such as startle, hearing loss.

1. Subjective Effects of Noise

About 10 percent of the population is so sensitive to noise that they object to any noise not of their own making. Thus, some complaints occur even in the quietest environments. Another sizable portion of the population (about 25 percent), however, does not react or complain even in very severe noise exposures. In any given noise exposure, therefore, one should expect a variety of reactions from the people exposed, ranging from serious annoyance to no awareness. Noise abatement efforts do not affect the reactions of people who are either ultrasensitive or insensitive to noise; noise control is beneficial to only the middle two-thirds of the population. People can be expected to respond to changes in level as follows:

a) except in carefully controlled laboratory experiments, an increase or decrease of only one dB in A-level cannot be perceived.

b) outside of the laboratory, a three-dB increase or decrease in A-level is considered a just-noticeable difference.

c) an increase or decrease in A-level of at least five dB is required before any noticeable change in community response would be expected.

d) a ten-dB increase in A-level is subjectively heard as a doubling in loudness, and would almost certainly cause adverse change in community response. A ten-dB decrease in A-level is subjectively heard as a halving in loudness and represents a significant improvement in noise environment.

It has been found that people in different types of neighborhoods have different reactions to noise. For a given noise level increase, instances of annoyance, disturbance and complaint will be greatest for rural areas, followed by suburban/urban residential, commercial and industrial areas in decreasing order. Similarly, a given noise will be more disturbing to people at night than during the day. Seasonal variations have also been noted; noise is more disturbing in summer than in winter.

2. Activity Interference

Interference with speech communication. People generally have the ability to hear and distinguish one sound from a background of sounds. For example, one can often hear the telephone ringing over a background of music and conversation. However, this ability has definite limitations. Unwanted sound can interfere with the perception of desired sounds or signals; this interference is called masking. Masking can render a sound or a signal inaudible or unrecognizable. Masking becomes a serious problem when background noise interferes with perception of speech. Accurate speech communication is crucial to formal education, occupational efficiency, family relationships, and the overall quality of human life. This function may be lost or severely diminished in noisy situations.

Background noise that interferes with speech can adversely affect the development of social and working relationships in adults. In language studies, people have been found to vary their voice levels and distances in accordance with the level of background noise, physical convenience, and cultural standard.

Person-to-person distances of less than 4-1/2 feet tend to be reserved for confidential or personal conversations, usually with a lowered voice, while distances greater than about five feet are usually associated with public messages delivered with a raised voice. Therefore, levels of background noise requiring the distance between talker and listener to be less than four feet may discourage communication among and be upsetting to persons not intimately associated. Similarly, there will be great reluctance to raise the voice level to deliver a personal message, even if this is necessary for speech intelligibility.

Face-to-face personal conversations at the usual distance of about five feet can proceed in A-weighted noise levels as high as 66 dB. In many conversations involving groups of people, distances between speaker and listener of five to twelve feet are common, and the level of the background noise should be less than 50 to 60 dBA. At public meetings or outdoors in parks, yards or playgrounds, where distances between talker and listener range from twelve to thirty feet, the A-weighted sound level of background noise should be kept below 45 to 55 dB, if practical speech communication is to be possible.

Interference with Sleep. Sleep is complicated series of states, generally following similar patterns in people of all ages. The amount of time spent in the different states which comprise a night of sleep vary from the drowsy/awake state to the deep sleep state and back again. It has been widely observed that sound can interfere with any of sleep's stages and that people can acclimate themselves to certain noises and sleep through them. It is possible that only unfamiliar environmental sounds disturb sleep. For example, a rural person may have difficulty sleeping in a noisy urban area while an urban person sleeping in a rural area may be disturbed by the soft nighttime sounds of the countryside.

Intermittent noises of sufficient intensity alter the normal pattern of sleep, usually in the direction of lighter sleep. Long-term sleep disturbance by noise produces a "poor" sleep pattern with long periods of light sleep and frequent wakenings. Sleep is essential to normal functioning while awake, but loss of normal sleep has not been shown to cause adverse health effects. Most people can eventually adjust a disturbed sleep pattern and compensate by spending more time in deep sleep, becoming less responsive to external stimuli, or by napping.

No range of noise levels has been established as the minimum range at which sleep disturbance occurs. As a person experiences the deepening stages of sleep, the threshold of noise perception becomes higher. For instance, in the second stage of sleep ("moderate"), a noise 30 to 40 dBA above a person's threshold of hearing while conscious will be required to wake that person; in deep sleep, a noise must reach sound levels 50 to 80 dBA above that threshold to wake the person. Of course, very loud, brief noises (with sound levels of 100 - 120 dBA) will wake nearly everyone from any stage of sleep.

Interference with Performance and Learning. Noises seemingly begin to interfere with human performance when the A-weighted level exceeds 90 dBA. High frequency noise (above about 1000 - 2000 Hz) or irregular bursts of noise are more distracting

and may produce more performance interference than low frequency noise or steady noise. The performance of tasks demanding accuracy or having a complex series of steps is most likely to be adversely affected, without necessarily reducing the total amount of work performed. Learning, especially in small children, can be seriously hindered by the presence of high or constant levels of background noise, since the noise can be a barrier to speech perception and exchange (as previously mentioned). For children, this interference may have far-reaching detrimental effects, because speech communication is extremely important in developing language and reading skills.

Noise effects on human performance can be grouped in three classes: 1) arousal; 2) distraction; and 3) specific effects. Arousal of bodily systems can result either in detrimental or beneficial effects on human performance, depending upon the nature of the task and the person's state prior to the exposure. For example, noise might induce muscular tension which could interfere wth delicate movement, while a sleepy person might be beneficially aroused by the noise and perform more effectively in noise than in quiet. Distraction has been defined as a lapse or diversion of attention from the task at hand, and most often is the result of annoying characteristics of a noise. Specific effects include masking and muscular activation such as startle.

3. Physiological Effects of Noise

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories we have described. Yet, at any given sound level, individual responses will vary considerably, and physiological effects of a transient or possibly persistent nature may result. Brief sounds at levels exceeding 70 dBA can produce such physiological responses as general constriction of the blood vessels and changes in breathing, size of the pupils of the eyes, and gastric secretions. Steady noises of 90 dBA have been shown to increase tension in all muscles, and influence the response time in a simple choice task. Long-term exposure to levels exceeding 70 dBA can cause hearing loss. While physiological arousal by noise can be beneficial in maintaining response to possible danger, continuing unnecessary arousal to irrelevant sounds can be annoying and possibly damaging to general health.

II. 24-Hour Environmental Noise Data

Noise levels were measured over a 24-hour period. The hour-by-hour data are shown in Figure A-2. The measurement system consisted of a B&K 2219 Sound Level Meter, a Sony 153SD cassette recorder, and a timer. The noise level was recorded for one second every 35 seconds. The data was reduced in the laboratory using the B&K 4426 Noise Level Analyzer. The system was calibrated in the field with a B&K 4230 Calibrator and the microphone was fitted with a windscreen.

During the measurement the sky was clear to partly cloudy, winds ranged from 0 to 10 mph, and temperatures were moderate.

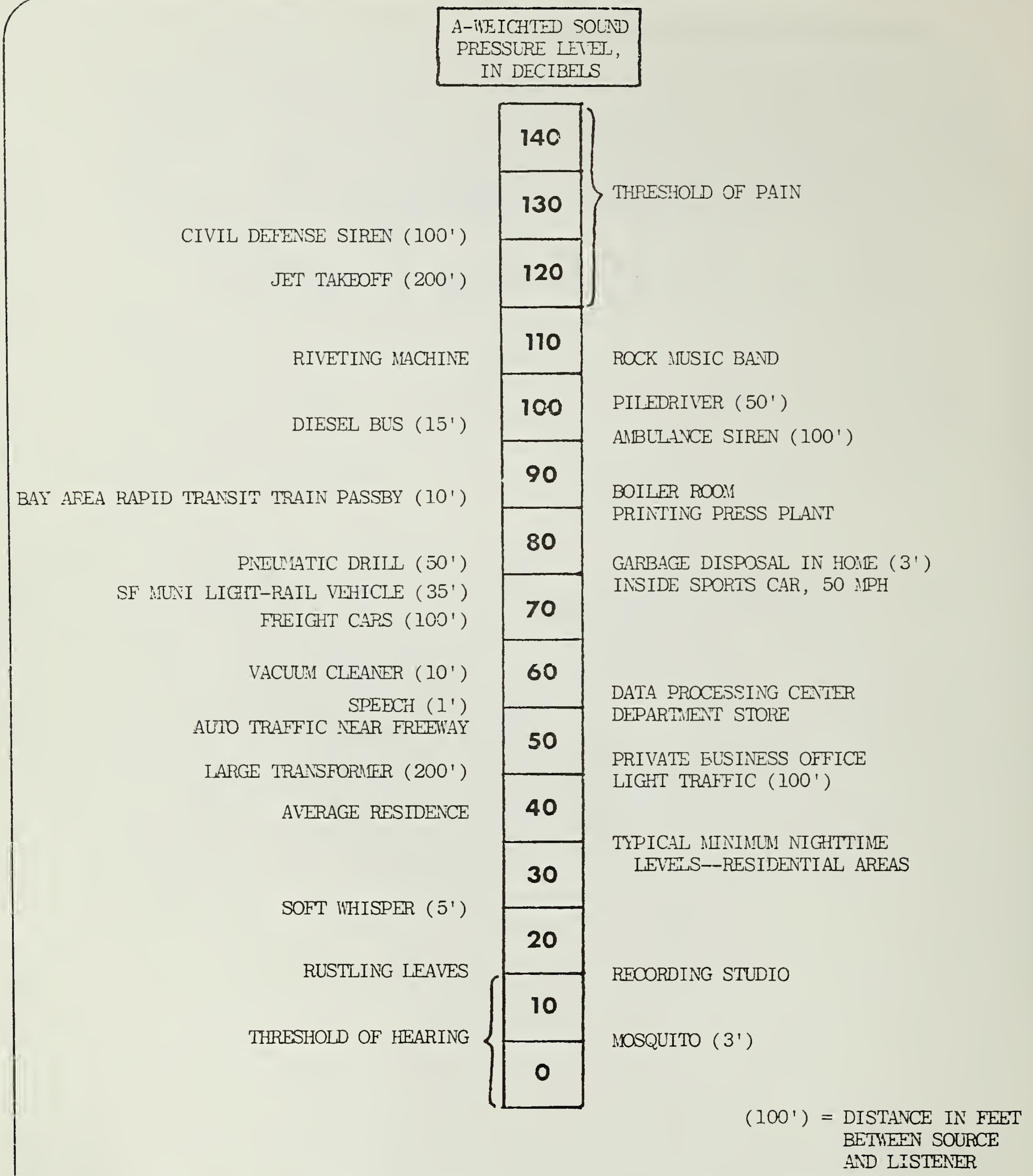


FIGURE E-1: TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

charles m. salter associates, inc. 350 Pacific Avenue, San Francisco, CA 94111 tel: (415) 397-0442

APPENDIX F

24-HOUR ENVIRONMENTAL NOISE DATA

PROJECT: Calif. & Powell CONDOMINIUMS, EIR

LOCATION ON W. side of Powell St. in Stanford Court Planting Strip, 48' so. of Calif. st. curb and 15.5' W. of Powell St. Curb

SITE NO.

DATE 5/15-16/79

DAY OF WEEK TUES/WED

WEATHER CONDITIONS CLEAR - NO WIND

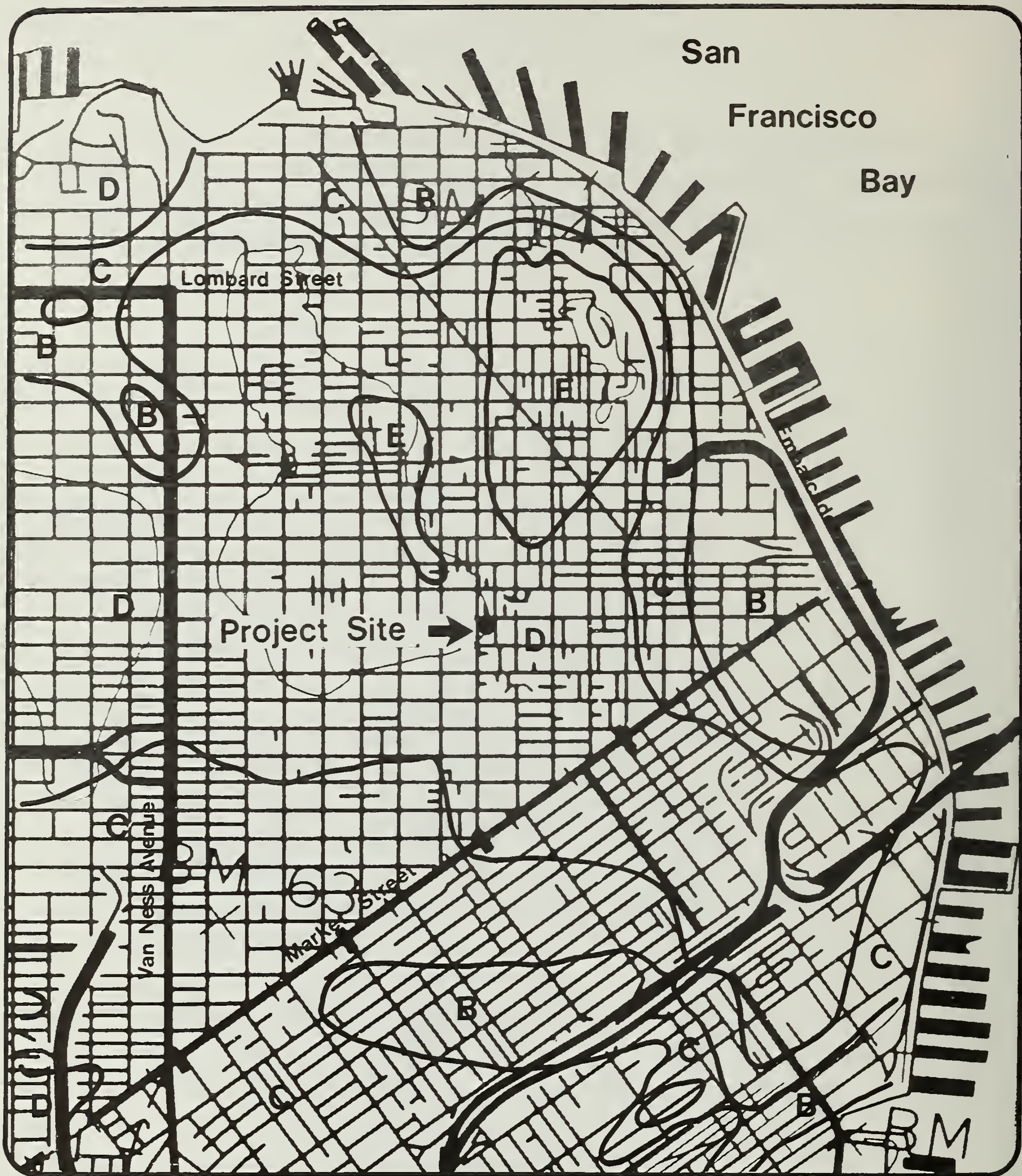
START TIME 5 PM

Time	Leq	Comments
5-6 PM	67	Traffic, Cable Cars (78 dBA)
6-7 PM	65	"
7-8 PM	64	"
8-9 PM	66	Traffic, Cable Cars (bells to 83 dBA)
9-10 PM	65	" " (76 dBA)
10-11 PM	65	Traffic, Cable Cars, Motorcycles to 78 dBA
11-Midnight	63	Traffic, Cable Cars
Mid-1AM	64	Traffic, Cable Cars
1-2 AM	62	Traffic
2-3 AM	54	Traffic
3-4 AM	61	Traffic, equipment idling
4-5 AM	55	" "
5-6 AM	57	Traffic
6-7 AM	61	" Cable Cars begin
7-8 AM	66	" Cable Cars
8-9 AM	66	" "
9-10 AM	66	" "
10-11 AM	64	Traffic, fewer Cable Cars
11-Noon	66	Traffic, Cable Cars
Noon-1PM	64	" "
1-2 PM	66	" "
2-3 PM	66	" "
3-4 PM	66	" "
4-5 PM	66	" "

CNEL = 69 dB

L_{dn} = 69 dB

Figure F-1



Estimated Intensity of Future Ground Shaking
(Refer to Legend, Figure G-1b)

Source: San Francisco Seismic Safety Investigation, John A. Blume & Associates, June, 1974

North

0 1,000 2,000 4,000
Scale Feet

Figure No. G-1a

A Very violent. Cracking and shearing of rock masses. Deep and extended fissuring in soil, many large landslides and rockfalls.

B Violent. Fairly general collapse of brick and frame structures when not unusually strong. Serious cracking of better buildings. Lateral displacement of streets, bending of rails and ground fissuring.

C Very strong. Masonry badly cracked with occasional collapse. Frame buildings lurched when on weak underpinning with occasional collapse.

D Strong. General but not universal fall of brick chimneys. Cracks in masonry and brick work.

E Weak. Occasional fall of brick chimneys and plaster.

NOTE: Intensities are given for earthquakes similar to the 1906 event in Magnitude and proximity to San Francisco.

Legend:

Estimated Intensity of Future Ground Shaking

Figure No. G-1b

Prepared by:
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APPENDIX H

ENERGY DEMAND CALCULATION METHODOLOGY[1]

One of the most significant factors in building energy use is the combined effects of the energy use habits of the occupants of the building. Because people are unpredictable in their energy use habits, and because wide variations in energy use patterns can be exhibited by different people living in separate, but identical, living spaces, the calculations below do not attempt to predict energy use in a precise manner. All numbers are rounded to two significant figures for this reason. These figures are meant to give the reader a general idea of the project's energy impacts, and the structure's actual energy use pattern may be quite different from the pattern represented by these calculations.

1. Heating Loads

The heating loads were calculated according to the method set forth in Chapter 4 of the Handbook of Air Conditioning, Heating, and Ventilating (see Chapter XI, Bibliography). It was estimated that the building would lose 490,000 BTU per hour. The daily load curve was calculated by using the method set forth in PG&E's At Your Service (see Chapter XI, Bibliography).

2. Non-Heating Electric Loads

The consumption figures for the non-heating electrical appliances were taken from Berman, et al., Electrical Energy Consumption in California, Lawrence Berkeley Laboratory, Berkeley, CA, 1976.

3. Gas Loads

The consumption figures for gas appliances were taken from average figures based on PG&E tests and industry statistics as set forth in At Your Service. The estimated water

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[1]Copies of energy calculations are available for review by interested readers at the San Francisco Department of City Planning, Office of Environmental Review, 45 Hyde Street, San Francisco, CA 94102. Telephone (415) 552-1134.

heater consumption was calculated using Graph 8-1, Appendix A of the California Energy Commission's Energy Conservation Design Manual for New Residential Buildings, Sacramento, 1978. It was assumed that each occupant would use 18.5 gallons per day of hot water derived from a central water heater equivalent to 30 gallons per unit.

Peak gas load was calculated by assuming that all gas appliances would be turned on at full usage simultaneously.

The daily load curve was based on actual demand placed on PG&E by similar projects in San Francisco. This demand schedule was obtained from Bill Hancock, Energy Utilization Engineer for PG&E, following a telephone communication on 16 February 1979.

APPENDIX I

REVENUE PROJECTIONS

A. PROPERTY TAX

It is assumed that appraised values of the individual condominium properties would be equivalent to the sales prices, which would average $600/sq. ft.[1] The 29 units noted total 64,357 occupied square feet times $600 = $38,614,205.[1]

Total appraised value, 29 condominiums on 16 floors: $38,614,200

Total Property tax (including bond repayment) at 1.19%: $459,000

B. UTILITY USERS TAX

1. Estimating PG&E Bills[2]

a. Gas

Assume average consumption per unit of 4.5 therms per day, or 136 therms per month.[3]

136 therms x $0.29 (residential rate per therm up to 82 therms per month + $0.56 for the next 106 therms)	$ 54.00
Base charge per month	1.20
Average monthly charge	$ 55.20
$65.30 x 29 units x 12 months =	$19,220.00

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[1]This assumes a sale in 1983 (or 1983 dollars). Units are expected to be on sale before completion of construction. Clement Chen, Clement Chen & Associates, personal conversation, 9 February 1981.

[2]Rates from Joseph Greenbaum, Customer Service Clerk, Pacific Gas and Electric Company, telephone communications, 5 March 1980.

[3]Based on energy calculation, Section III. G, (190 BTU's per square foot of interior floor space/day x 64,400 square feet = 122.4 therms - 29 units = 4.5 therms/day/unit x 30 days = 135.9 therms/mo/unit). All units would be generally the same (except for the full-floor penthouse unit) as gas would be used for water heating, space heating, cooking and clothes drying. The number of persons per unit may affect calculations, but to a limited extent.

b. Electricity

The total average monthly load (12,000 kwh)[1] allocated among the 29 condominiums and the ground floor, considered as one unit, according to relative amounts of space. The winter and summer allowances of kwh usage for the base "lifeline" rate of $0.04, and the $0.06 rate for usage in excess of that allowed for the lifeline rate, were used in computing average monthly bills as follows:

0.13 kwh/square foot of interior floor space x 64,400 square feet = 8,372 - 29 = 288 kwh/mo/unit = $13.25+ base charge $1.95 = $15.20 x 29 units = $441.00 x 12 = $6,292 annual bill and caretaker, lobby ($2000) = $7,290.00

c. Tax Computation

Annual total electric bills	$ 7,290
Annual total gas bills	19,220
Total PG&E bills	$26,500
Tax at 5¢ per $1	$ 1,325

2. Estimating Pacific Telephone Bills

Monthly phone bills would probably range from $35 to $100 per month. An average of $70 is assumed.

$70 x 12 months x 31 billing units	$65,100
Tax at 5½¢ per $1	$ 3,580

3. Estimating Water Department Bills[2]

Total consumption/mo.: 190,000 gallons

Equivalent to 25,400 cubic feet/mo.

Water billing rate: 37¢ per 100 cubic feet

Total annual bill ($94 per month for entire building x 12):	$ 1,128
Tax at 5¢ per $1	$ 56

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[1]Based on energy calculation, Section III. G.

[2]Consumption from Community Service Section, III. H. There are 7.48 gallons in a cubic foot.

4. Summary

PG&E	$ 1,325	
Pacific Telephone	3,580	
Water	56	
Total	$ 4,961	= $5,000

C. PAYROLL TAX

	Annual[1] Wage	Total Annual Payroll
3 Security-Valet	$15,000	$45,000
2 Maintenance	20,000	40,000
1 Janitor	13,000	13,000
		$98,000
Tax at 1.1%		$ 1,080

D. SALES TAX

The minimum family income necessary to purchase a unit in the project would be $479,400 (assuming a conventional mortage at 16 3/4% interest). The taxable buying habits of families in this income range are not consistently documented; however, in general families spend about 14.6% of income on purchases from the trades sector.[2] It is assumed that 75% of these purchases would be made in San Francisco.

Tax Computation

Family purchases @ 14.6% of 479,400 =	$ 70,000
Project Sales (29 families)	2,030,000
Sales in San Francisco (75% of total)	1,522,500
Sales Tax to San Francisco (1% of sales)	15,225

Due to inquantifiable variations in buying habits, we estimate actual sales tax revenues will range from $14,000-$17,000.

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[1]Clement Chen, Clement Chen and Associates, telephone conversation, 9 February 1981.

[2]San Francisco Bay Area Input-Output Model, 1967 and 1974. University of California Cooperative Extension.